The Construction, Building Products and Services Markets in China

February 2001

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February 2001

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THE CONSTRUCTION, BUILDING PRODUCTS AND SERVICES MARKETS IN CHINA

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EXECUTIVE SUMMARY

China is emerging as an important destination for exports of Canadian building products and construction services. The construction industry in China is being fuelled by a number of factors, such as dramatic economic progress, an increased standard of living, increased per-capita income and the need for better-quality housing and buildings.

More importantly, significant residential construction opportunities have materialized since the introduction of the national housing program in 1998, aiming at privatizing the housing market across China. The central government has also designated the real estate industry as one of China's "pillar" industries. Accordingly, construction and renovation of residential housing is becoming the focus of investment in China's real estate sector. Although the construction of commercial and industrial building has been growing at a slower pace, it is expected to gain considerable headway as it becomes a direct beneficiary of the mushrooming of foreign-invested factories and branch offices, which is likely to follow in the wake of China's accession into the World Trade Organization (WTO).

While China does have an extensive building products industry that produces many of the materials that the Chinese market consumes, there is a growing need for higher-quality, more advanced building products and services. Improving the quality of construction and making overall improvements to the quality of social residential buildings has become a key point in the government's future work. Value-added products and technologies, including energy-efficient products, waterproof materials, and intelligent building management systems and controls, have increasingly high market potential in China. The country is also beginning to seek out foreign involvement more often in the area of architectural design and engineering consulting.

With China's entry into the WTO, companies seeking to export to China stand to benefit with lower tariffs and structural trade policy changes. However, the phase-in of tariff rate reductions and other changes in China's trade policy will take time.

While there is intense competition from foreign suppliers — mainly from Japan, Taiwan, Germany, Italy, Hong Kong, Korea, the United States, Australia, the United Kingdom and France — Canadian companies have fared well in many of the subsector categories, such as plastic window frames, coatings and energy-efficient building

components. However, low awareness of Canadian products, coupled with high import tariffs, lower-priced local substitutes and non-tariff barriers, pose certain impediments to market entry.

China remains a complex, highly regional and frequently changing marketplace, making it imperative for most foreign exporters to seek Chinese partners to facilitate navigation of local regulations and expectations. To facilitate market entry, Canadian exporters are encouraged to engage the services of local representatives or distributors who are familiar with the culture, language, marketing and distribution systems of the country.

China currently holds significant market potential for Canadian building product and construction services firms. However, the proposition of working in China must be viewed as a long-term business plan. Those who have achieved success in China have patiently developed professional and personal relationships, and have gradually increased the number of projects in which they are engaged.

While the vast building material market may be divided into various segments, this report examines niche opportunities in the construction and building products markets of China. The report does not provide a complete account of all sub-sectors but, rather, presents selected categories which have been identified as offering strong potential opportunities for Canadian building product exporters.

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THE CONSTRUCTION, BUILDING PRODUCTS AND SERVICES MARKETS IN CHINA

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MARKET OVERVIEW

China's construction industry, worth an estimated $506.3 billion[1] in 1999, is the world's second-largest construction market, following the United States ($1,077.8 billion). China's construction market is forecast to grow at a rate of 15% to 30% over the next five years, and is expected to become the world's largest construction market by 2010, when projected spending will approach $1.7 trillion.

The construction sector has grown into one of China's pillar industries, and accounts for more than 6% of the country's gross domestic product (GDP). It represents the third-largest sector in the Chinese economy, after manufacturing and agriculture.

In 1999, actuated investment in China's real estate development was reportedly $71.95 billion (401 billion RMB), up 10% over 1998. In the construction services sector, total investment amounted to about $2.28 billion (12.70 billion RMB) in 1999, 30.4% more than in 1998. Roughly half of national real estate investment is concentrated in the eastern seaboard and major metropolitan areas of Shanghai, Beijing and Guangdong Province. This demonstrates the unbalanced development that is skewed toward the eastern seaboard and major metropolitan areas.

Table 1. Investment in Real Estate Development in China, January-June 2000

Sector	January-June 2000 ($ billions)	% Change (Jan-Jun 1999 to Jan-Jun 2000)
Real Estate Development	28.75	22.4
Residential Housing	19.94	28.8
Office Towers	2.03	6.2
Commercial Buildings	2.93	12.9
Other	36.93	27

Source: Asia Pulse, *China's Investment in Property Development Rises 22.4%* , August 2, 2000.

[1] All monetary amounts are expressed in Canadian dollars, unless otherwise indicated. The conversion rate to Canadian dollars is based on IDD Information Services, *Tradeline*, July 2000.

China's demand for new construction is immense and widespread. While the profusion of new construction projects is based in China's major cities and industrial areas such as Beijing, Shanghai, Tainjin, Chongqing and Guangzhou, regionally, the provinces of Jiangsu and Heibei are the most developed because these regions surround Shanghai and Beijing-Tianjin, respectively. (See **Appendix A** for further data on construction statistics in China's provinces.)

Furthermore, it is anticipated that by the end of 2000, there will be approximately 230 new major urban centres and 5000 systematized new towns in China. By that point, 25% of mainland Chinese will be urban dwellers. The rate of 17 new towns per year will increase to 28 urban centres per year in 2001-2010, by which time 31.5% of the people will live in cities. To deal with this rapid economic expansion, there will need to be further development and improvement of the investment environment, construction of new cities and towns, and revitalization of existing cities. However, the Chinese economy cannot currently cope with the resulting boom in construction, as the domestic industry is not able to meet demand.

Table 2. China's Construction Market, 1998-2000

	1998	1999	2000
Total Housing Starts (thousand units)	8516	8942	9389
— of which are wood frame	85	89	93
— of which are steel, masonry, other materials	8431	8853	9296
— of which are residential	3829	4471	5634
—— of residential, single family	383	447	563
—— of residential, multi-family	3446	4024	5070
— of total starts, are commercial	4688	4471	3756
Total Value of Commercial Construction Market ($ millions)	$ 60,179	$63,273	$65,604

Source: *Foreign Agriculture Service, GAIN report*, U.S. Department of Commerce, 1999.

Residential Construction Market

Massive housing construction and increasing housing sales have spurred China's economic development, and the housing industry is becoming a major focus of consumer spending. One of the main goals of the Chinese government in the near to medium term is to improve the standard of living of its population of approximately 1.25 billion inhabitants by renovating, modernizing and privatizing homes. Banks have therefore been instructed by the government to increase the volume of loans available to individuals who want to purchase a home. Moreover, the government plans to expand the living space of the urban population; the per-person amount of living space in urban China has already gone from 3.6 square metres (m^2) per person in 1990 to 8.4

m^2 in 2000. The goal for 2005 is 12 m^2, and 18 m^2 per person for the year of 2010, keeping the housing market booming.

Each year for the past 10 years, 200 million m^2 of urban housing have been built, amounting to 2 million to 4 million apartments, at a cost of $65.6 billion per year. China is expected to continue to build at least 200 million m^2 of residential housing annually during the next decade. Moreover, increasing numbers of high-rises and multistorey buildings are being constructed in China's cities.

In 1998, residential housing accounted for 80% of total space of completed real estate projects. Moreover, sales of residential houses accounted for more than 85% of total real estate sales. In 1999, approximately 410 million m^2 (4.41 billion square feet) of residential housing was completed, an increase of 19.6% from the previous year. The Ministry of Construction (MoC) reports that three billion m^2 of new housing will be needed nation-wide every year for at least the next five to seven years.

There are three basic types of housing in China. The most common types are referred to as *commodity* and *benefit*[2] housing, both of which fall under the heading of *economical* housing. These two types of housing generally cost between $400 and $450 (2250 – 2500 RMB) per m^2 . The third group amounts to less than 1% of all housing, and is geared toward expatriates and wealthy Chinese. This type of housing starts at the $1000 to $1500 (5800-8300 RMB) per m^2 level.

Because moderate-income housing in China is still in its experimental stages and high-end housing is nearing saturation, low-cost residential housing projects have the most growth potential in the short to medium term.

Currently, most houses built in China are composed of reinforced concrete brick, with wealthier owners using wood for interiors, doors and trim. With a shortage of raw material, China has been encouraging the use of wood-based composites. However, the lack of raw material means that China will continue to depend on imports to meet this demand.

Commercial and Industrial Construction Markets

Commercial activity is concentrated along China's eastern seaboard, particularly in Shenyang, Beijing, Tianjin, Shanghai and Guangzhou. Furthermore, the following cities in China have been identified as emerging new business centres, which are becoming increasingly open to foreign investment: Chongqing, Dalian, Fuzhou, Jiangyin, Kunming, Ningbo, Qingdao, Suzhou, Wuhan, Wuxi and Yantai.

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[2] Benefit housing was allotted to workers by their employers up until late 1998 .

During the past few years, China's office construction market suffered from overinvestment. Real estate developers erected too many buildings, resulting in almost half of office buildings remaining vacant in some cities. Currently, however, rapid industrialization programs undertaken by the Chinese are not only resulting in the massive expansion of the country's infrastructure, but are also spurring the rapid development of the commercial and industrial construction markets.

Moreover, the development of high-growth regions, including Special Economic Zones (SEZs), has resulted in the construction of numerous commercial construction projects including skyscrapers, offices, hotels, shopping centres and other commercial and industrial properties. Regionally, the building of high-tech and other industrial parks is rapidly expanding in Shanghai. Shanghai represents China's major commercial and financial centre. The regional government continues to focus new construction efforts in designated areas, mostly outside of central Shanghai. While major projects are under way in the Minhang and Hongqiao Economic and Technological Development Zones and the Caohejing High-tech Park, the bulk of new commercial construction is taking place in the Pudong New Area directly across the river from the Bund. This zone is expected to become Shanghai's new central business district. Development projects in Pudong include high-rise office buildings, luxury apartments, and low-end residential apartment towers.

The demand for new recreational facilities and parks is also increasing as Chinese urbanites have more time and money for leisure activities. A market for sports and leisure facilities emerged after the introduction of a two-day weekend in 1995.

Finally, since China began to open its commercial sector in 1992, the country has seen the establishment of numerous retail complexes and international retail giants. With the stepping up of China's entry into the World Trade Organization (WTO), it is expected that the construction of commercial and industrial buildings will increase even faster, especially in provincial capitals and autonomous regions.

Building Products and Construction Services Market

China's building materials market has been booming since 1992, with growth rates between 15% and 20%, and there is no sign that this growth will decrease in the near future.

With over 50 years of development, China has become one of the world's largest building materials producers, with annual outputs of cement, sheet glass, ceramic tiles, and sanitary wares ranking first in the world. China's building materials market is currently valued at approximately $78 billion, ranking fifth among the country's various industrial sectors. Construction material generally accounts for 60% of total construction costs. Every year, China's construction industry consumes 20% to 30% of the country's total steel production, 70% of cement, 40% of timber, 70% of glass, 50% of paint and

25% of plastic products. Building material imports from foreign countries amounted to $4.8 billion in 1999.

Since 1996, the building materials industry and the construction industry have been listed as "pillar" industries of the national economy, which has brought a great impetus for the development of the industry. China's building materials sector registered an average annual growth rate of 13.1% between 1952 and 1998, 1.5% higher than that of the nation's industrial sector. During the next five to10 years, the building materials sector is expected to remain an attractive sector in China, with projected increases in sales.

Table 3. Building Products Market in China, 1997-1999

	1997 ($ millions)	1998 ($ millions)	1999 ($ millions)
Total Market Size	60,871	70,620	78,044
Total Local Production	62,722	72,701	80,228
Total Imports	4,182	4,626	4,787

Note: The numbers above include only those amounts from the four representative HS categories: 44-wood; 68-stone, plaster, cement, etc.; 69-ceramic products; and 70-glass and glassware.
Source: Country Commercial Guide FY 1999 (China), U.S. Department of Commerce.

Although there is currently no real shortage of the basic construction materials in China — cement, bricks and aggregates are all readily available locally — other domestically manufactured building products such as more advanced building products generally meet market demands, but quality in many instances is still well below international standards. Imported goods are therefore often sought, because they are considered to be of higher quality and provide more options. Foreign-Chinese joint-venture products are in particular in demand because of the perception of higher quality compared to domestically produced products.

Real Estate, Urban Planning and *Architectural Services*

Because the real estate industry is relatively new in China, it exists primarily in major cities and metropolitan areas. Development is uneven among these cities which has led to the following geographic classifications: super-cities, coastal cities, and inland cities. The current policy of the Chinese government involves the development of the coastal areas with a controlled and gradual move inland.

Regionally, the western regions of China have gained headway in developing their real estate markets, with investment and housing sales increasing faster than in the eastern and central parts of the country.

Urban planning remains an important issue in China. In the 1980s and 1990s, scores of office buildings were constructed with little regard for design or local culture, and the reaction to many of these projects has been negative. In contrast, the architecture market in China is moving from pure function to one that embraces style. Government officials and Chinese business people are beginning to appreciate more sophisticated architectural design and are increasingly willing to pay for such services. As a result, the Chinese are actively seeking out foreign involvement, particularly in the area of advanced technology, architectural design ideas and management expertise.

Regional Overview

China should be viewed as a collection of distinct regional markets differentiated by geography, local resources, economic structures, level of development and growth prospects. Therefore, the priorities and needs for building products and services are largely determined by the regional content.

The architectural styles of different regions and ethnic backgrounds in China may also vary in characteristics and functions. For example, in Beijing and Tianjin, nearly one third of all houses are two-room and one-hall suites. In Shanghai, one-room and two-room suites account for one third of housing and less than 15% of housing has halls. In Guangzhou, more than two thirds have halls, while two-room and one-hall suites account for 37% of the total.

Similarly, different materials can be found in various regions, even in different districts within the same city. The following section examines selected key regions within China:

Beijing

Beijing is home to approximately 12 million permanent residents and has an estimated 3 million transient residents. Average household savings levels are the highest in China at $4,360. New suburban subdivisions resembling North American suburbs are sprouting up on Beijing's outskirts, and construction of residential housing will continue to be promoted by the municipal government. Development of Beijing's satellite (suburban) towns may be included in the municipal government's next five-year development plan.

In Beijing, nearly 8 million m^2 of residential housing is built every year. In 1999, the city spent $3 billion on residential housing (5.88 million m^2) and $1.4 billion (0.6 million m^2) on renovations. Statistics indicate that 4.5 million m^2 of economical[3] housing space

[3] Economical housing refers to housing built on land allocated by local governments and enjoys more favourable treatment, including reductions in or exemptions of some taxes and fees. It is designed for medium- and low-income families.

were constructed in Beijing during 1999, with 1.5 million m^2 completed before the end of 1999, and 1 million m^2 sold. In 2000, it is estimated that Beijing will invest an additional $1.7 billion (9.56 billion RMB) in the construction of economical housing to provide more affordable houses for medium- and low-income families.

In contrast, commercial building in Beijing is currently experiencing little growth because of the overbuilding that took place during the past few years when the industry was flourishing. On average, only 60% of the available commercial floor space is rented in Beijing. However, this might change in the wake of China's WTO entry, as Beijing — the country's political and administrative capital — is expected to experience a surge in the construction of "grade-A" international offices, as multinationals launch new businesses or expand existing operations in the region.

Beijing's market for well-designed buildings, and for architects who can design sophisticated architectural designs, is promising. Some of Beijing's best well-built high-rises include the China Resources Building, The Kerry Centre and the China World Trade Centre. Beijing has also just completed a new futuristic-looking science museum and planetarium, and has awarded a French company the right to design a bubble-shaped national theatre.

Shanghai

Although the Chinese business scene is highly regional, it is said that being able to successfully access the Shanghai market means high chances of succeeding elsewhere in China, because the rest of the nation is looking to Shanghai as a showcase city for future development. Moreover, when taking into account the fact that Shanghai is the most cosmopolitan city in China, as well as being the focal point of China's modernization, there is little doubt about the opportunities that exist for foreign companies with advanced building products and technology.

Housing construction in Shanghai was 15 million m^2 in 1996, 16.8 million m^2 in 1997, 15 million m^2 in 1998 and an estimated 12 million m^2 in 1999. Moreover, in 1998, houses were Shanghai's largest commodity, with sales totalling $5.5 billion, an increase of 65% over 1997. The municipal government forecasts that the real estate market will account for 10% of GDP in 2000. The Shanghainese are among the wealthiest people in China. While the national average GDP per capita was $1,230 in 1998, the average was $4,558 in Shanghai and $821 for Anhui, Shanghai's neighbouring province. In addition, while the national per-capita residential space should reach 8.4 m^2 for 2000, the Shanghainese are aiming to have 10 m^2 per capita.

In 1998, sales generated from building materials in Shanghai were estimated at $1.25 billion (7 billion RMB), $358 million (2 billion RMB) of which was on interior decorative materials. The industry is expected to continue growing at a rate of 20% annually. The Shanghai building materials industry is worth one fifth of China's total.

Housing sales in the Pudong New Area of Shanghai have been particularly brisk since the beginning of 2000, and 333 000 m^2 of floor space was sold in January, compared with 225 000 in the same period of 1999. Moreover, according to the Pudong New Area Administrative Committee, there are dozens of firms and residents moving into Pudong everyday, thus increasing the demand for new housing.

Problems in Shanghai include increasing unemployment due to layoffs and the largest vacant residential stock in China, accounting for over 15% of the national total. House prices have slumped accordingly. However, Shanghai is the most advanced city in housing reforms, and has implemented numerous measures to increase private home ownership and reduce vacancy rates.

In spite of serious oversupply in Shanghai's commercial building sector, the city is expected to remain a major market for building materials in the foreseeable future. Approximately 40% to 50% of Shanghai's building materials are imported or joint-venture products. The market is extremely competitive. Products in demand include mosaic tile; breeze blocks; concrete blocks for outer wall material; floor coverings; partition walls; ceiling materials; roof tiles; paint and coatings; plastic and steel windows; shower decoration materials; and plasterboard.
Opportunities for architectural services continue to be good in Shanghai. A Canadian architectural firm designed the well-known Shanghai Stock Exchange building in Pudong.

Guangzhou

Guangzhou, which is located in China's wealthiest province, Guangdong, has a population of approximately 6.8 million people. Guangzhou's GDP reached $37 billion (206 billion yuan) in 1999, ranking third in China after Shanghai ($74 billion or 410 billion yuan) and Beijing ($40 billion or 221.6 billion yuan). The per capita income of residents in Guangzhou is $5,300, while that of the average Chinese on the whole is $1 200. The city of Guangzhou has the largest construction materials market in China, boasting a 20% annual growth rate. There are 22 000 building material manufacturers in the city, producing an output of $29.2 million. Guangdong's decorative building materials industry ranks first in China, with imports of $105 million in 1997. Spending on interior decoration is high, averaging $1,800 to $3,400 yearly per family.

In Guangdong, approximately 250 000 to 300 000 aging apartments and houses are in need of both interior and exterior renovation. Real estate accounts for 30% of total fixed-asset investment, much higher than the national average of 15%. Private home ownership is 30%, and, in 1997, average living space per capita was 12.4 m^2. About 57% of the public housing flats in Guangzhou have been sold to individuals. Products in demand include granite, Spanish marble, separation walls of imitation wood, wooden floors, coated glass, wall materials made of aerated concrete, breeze blocks, partition walls, cladding materials and PVC pipes.

Key Factors Shaping Market Growth

The construction industry and the demand for building products in China is being fuelled by various factors such as the economic outlook; increased private ownership and market-based housing programs; the need for more quality housing and efficient building; demographics; increased per-capita living space; growing size of the middle and upper-classes and the need to renovate deteriorating housing.

Economy

China is a developing country with 1.3 billion people and a rapidly expanding economy. China's economy has quadrupled in size since 1978, when it adopted its reform and open-door policy, encouraging economic growth and sustaining demand for building and raw materials.

Dramatic economic progress and relative political stability have also marked China's history in the last 20 years. The Chinese economy has maintained a sound momentum for growth in spite of impact of the 1997 Asian financial crisis and the devastating floods of 1998. Its GDP increased by 7.8% in 1998 and by 7.1% in 1999. With current GDP standing at about $1.5 trillion, China is emerging as the economic motor of the Asia Pacific region. As a result, the social productive forces have rapidly expanded, China's overall national strength has grown markedly, and the Chinese people have enjoyed a much better life. The economic picture for new cycle — the 10th Five-year Plan (2001-2005) — also looks promising, with economic growth targeted at 7%.

Table 4. China's Main Economic Indicators

Main Indicators	1994	1995	1996	1997	1998	1999
GDP ($billions)	743.9	960.8	1113.3	1248.7	1425.6	1493.3
Real GDP growth (%)	12.6	10.5	9.6	8.8	7.8	7.1
Consumer price index (inflation rate, %)	24.1	17.1	8.3	2.8	0.8	-1.3
Urban per-capita income ($)	556.25	703.7	793.58	861.77	978.13	1051.7
Rural per-capita income ($)	194.26	259.22	315.86	349.05	387.43	395.8
Urban unemployment rate (%)	2.8	2.9	3	3.1	3.1	3.1

Source: China Statistical Information Network, http://www.stats.gov.cn/yearbook/1999.

During the next 10 years, China is expected to continue its large-scale modernization drive. It is anticipated that fixed-asset investments will grow by more than 10% annually, and total imports in the coming decade will exceed $2 trillion, making China the fastest-growing region and one of the markets with the greatest potential.

Furthermore, a World Bank report estimates that China's share of world trade could triple from 3% in 1992 to 9.8% by 2020, making China the world's second-largest trading nation after the United States. China's economic growth has spurred the need for new housing and commercial space, thus fuelling increased demand for building resources.

Although China has matured to become one of the fastest-growing economies in the world, it still lacks foreign investment and the advanced technology necessary to meet consumer demand. To attract foreign investment, several new, free-market-driven policies have been developed. SEZs have been set up, and each has been given considerable leeway to manage its own affairs. Generally located along China's southeast coast from Shenzhen in the south, to past Shanghai in the north, economic reform is most advanced in these SEZs. The following table identifies China's five key SEZs, which are leading China in the pace of economic development.

Table 5. China's Special Economic Zones

Region	Area of coverage
Shenzhen SEZ	Located in the south of Guangdong Province, bordering Hong Kong's Kowloon.
Shantou SEZ	Located in the southeast of Guangdong Province. It is divided into two parts: Longhu in the eastern suburbs of Shantou, occupying 22.6 square kilometres, and Guang'ao Peninsula to the southeast of Shantou, occupying 30 square kilometres.
Zhuhai SEZ	Located in the south of Guangdong Province, west of the estuary of the Pearl River, adjoining Macao to the south (121 square kilometres).
Xiamen SEZ	Located in the city of Xiamen, Fujian Province and includes Xiamen Island and Gulang Islet (131square kilometres).
Hainan SEZ	China's largest economic zone, it encompasses the entire island province located to the south of China's mainland (34 000 square kilometres).

Regionally, over the past decade, Shanghai Pudong's economic growth has taken the lead in China. GDP in Pudong rose from $1 billion (6 billion RMB) in 1990 to $14 billion (80 billion RMB) in 1999, up 21% annually, on average. As Pudong's economy continues to develop rapidly, more and more people and businesses are moving into the area, creating a favourable environment for new construction projects.

Moreover, in January 2000, China formally launched the "Western Development Strategy" (WDS). Through this initiative, the Chinese government has indicated that it will try to channel foreign investment into the central provinces but especially in western regions to counter the growing wealth gap between the rich coastal areas and the

poorer, relatively underdeveloped, western provinces. Accordingly, the new emphasis on developing the west will be a cornerstone of the 10th Five-year Plan (2001-05). Western China comprises eleven provinces, autonomous regions and one municipality (including Shan'xi, Gansu, Qinghai, Sichuan, Guizhou, Yunnan, Xinjiang, Ninxia, Guangxi, Inner Mongolia, Tibet, and Chongqing). Together, these regions account for 56% of China's territory and are home to about one quarter of China's population. The region's GDP per-capita was $726 (4,051RMB) in 1998, 63% of the nation's average. (See **Appendix B** for further demographic and economic data in China's provinces.)

Sustainable Housing Development, Housing Reform and Government Programs

Housing Development

Construction of residential housing is becoming the focus of investment in China's real estate sector. At the beginning of the 9th Five-year Plan (1996-2000), the Chinese government designated the construction industry as a "pillar" industry, which means that the government will invest substantial time and money supporting construction projects. According to the Five-year Plan, 13% of the government annual gross investment went into construction. In January and February 1999 alone, investment in residential housing amounted to $2 billion, a growth of 42% over the same period in 1998. The government has even issued a moratorium on luxury housing and offices, which now suffer from overinvestment, and is instead encouraging individual commercial housing. In 1999, individual purchases accounted for 74.4% of the total volume of commercial housing sold, up 30.4% from 1998.

According to officials from the MoC, housing construction in China is expected to keep an annual growth rate of 15% in the 21st century. Consequently, over the next five years, China is expected to build at least 1.5 billion m^2 of housing in urban areas annually (representing no less than 4.5 million new units annually), 3.5 billion m^2 of housing in rural areas, and to renovate 2.9 billion m^2 of old houses.

In addition, new construction will soon be needed to replace existing state housing, which is generally poorly built and maintained. Approximately 30 million m^2 of old or inadequate housing is currently in need of renovation or rebuilding, and an additional 2 billion m^2 of old residential buildings need repair or remodelling.

Housing Reform

Housing reform (initiated in March 1998), with its multiplier effects for many different building materials industries, is the government's most important and largest undertaking this decade. High quality, low cost, energy-efficient, environmentally friendly and well-managed housing is the goal of this new housing reform.

Historically, under China's centrally planned system, most Chinese have had their housing provided by their work unit (state-provided); private ownership did not exist, and disposable income was minimal. China has achieved remarkable progress in its ongoing housing reform nation-wide, and most provinces and autonomous regions have established programs to sell houses to individuals instead of allocating residences to them as welfare benefits. In most provinces, autonomous regions and municipal cities, approximately 60% of all public houses have been sold to individuals, and the proportion has surpassed 80% in Chongqing Municipality, and the provinces of Zhejiang, Henan and the Guangxi Zhuang Autonomous Region.

It is estimated that the proportion of private housing has increased from 35.4% in 1995 to 63.1% in 1998. Housing reform in China is therefore slowly making home ownership a reality for the average Chinese family. This will continue the boom in the renovation market, as people seek out better-quality housing. As more families move into their own units in suburban apartment blocks or western-style detached houses, imports of higher-quality products such as flooring, moulding, windows, doors, cabinets, panelling, wall units and furniture will increase.

An additional repercussion of housing reform is that the relative size of people's homes is expanding. The per-person amount of living space in urban China has already gone from 3.6 m^2 in 1990 to 8.4 m^2 in 1998. The Chinese government plans to reach an "urban comfortable living standard" of 12 m^2 and 14 m^2 per person for 2005 and 2025 respectively, keeping the housing market booming. These expected increases in China's real estate sector will undoubtably create a stronger demand for building materials and construction services.

Furthermore, and even more significant for building materials suppliers, when an apartment is purchased in China, or when a work unit provides an apartment to an employee, it resembles an empty, unfinished box. There is no flooring or wall covering; kitchens do not come with cabinets or counters; there is a minimal number of light fixtures, and bathrooms are nearly empty. This situation creates a huge demand for a wide range of building products and interior decoration materials, and has led, during the last few years, to the establishment of building material supermarkets across China. These supermarkets are seeking to meet the demand of the millions of urban residents who now have a vested personal interest in renovating their homes.

In short, housing reform has made it a good time for foreign investors, including Canadian businesses, to invest in China's construction sector.

Government Programs

In addition to the housing reform policy, the Chinese government has issued a series of programs to ensure the adoption of housing reform and a smooth transition away from welfare housing allocations. Today, more than half of China's 35 mid-size and large

cities now have programs to sell existing state housing to residents. Local governments, led by Shanghai (with a $1.4 billion pool), are pouring record sums into low-cost mortgage programs. According to the Bank of China, the nation-wide mortgage market has doubled in size in each of the last three years. Other government programs established include:

- The MoC has established the Housing System Reform Group, whose mission is to encourage the general public to spend 20% to 30% of their income to buy houses within the next 10 to 20 years.

- The central government has forced China's four leading banks to start offering mortgages. However, the absence of a personal credit system in China means that prospective homeowners are unable to develop a credit history. Consequently, banks have sought to impose harsh requirements for individual home mortgages, including 40% down payments and payback periods of 10 to 15 years. There have been efforts at the local level in cities where housing needs are particularly intense and stocks are poor (e.g. Chongqing) to increase housing purchases by encouraging banks to cooperate with real estate developers in reducing down payments, even so far as limited experiments with a zero down payment plan. While mortgages have not been accessible for most home buyers, it is expected that this will change substantially over the coming decade as employers eliminate responsibility for provision of accommodation to employees, and a housing market emerges.

- The *Housing Provident Fund* has been established to help low-income families purchase their own housing. This fund collects money from a 5% employer tax and from state property sales, and doles out five-year mortgages at a current rate of 4.59%, which is one percentage point below prevailing commercial rates.

The introduction of these types of initiatives and government programs will undoubtedly stimulate a higher demand for new construction and, consequently, the demand for building products and materials.

Quality and Technology

Construction quality is recognized as a critical problem in China. The reasons for low quality in construction range from poor designs, low-grade materials and ambitious completion targets, to weak management and an unskilled work force. Main housing quality problems include malfunctions, poor safety and durability, and a lack of comfort and adaptability.

Moreover, because of a lack of technical expertise and poor management, China cannot produce high-tech and high-value building products. China can currently

produce only 2000 of the approximately 30 000 types of building materials and products that are commercially available.

Improving the quality of construction of residential buildings is therefore becoming a key part of the Chinese government's future policy. During the next few years, China's construction and building products sector will strive to achieve the level of technology that industrialized nations had in the 1980s. According to the Chinese government, China's building materials industry is expected to be upgraded in the next five years, with new materials and foreign cash being injected into the sector. While the use of traditional building materials like cement and glass will grow at a slow pace, new building materials and non-metallic materials (i.e. glass fibre, reinforced plastics, high-performance composite materials, industrial ceramics, special cementing materials, sealing materials, heat insulation materials) will see fast growth during the 10th Five-year Plan period (2001-2005). The country will also give key support to the development of new wall materials, and will use them to replace the clay bricks in 160 large and medium-sized cities during the next three years.

China is also concentrating its efforts on improving the quality of housing projects, establishing a standardized system for the use of building materials, and ensuring energy-saving and high-tech applications in housing construction. By 2005, housing projects should satisfy people's primary demands, and a comparatively standardized building materials system should be in place. By 2000, apartment buildings will consume 50% less energy, and the application of science and technology to building systems will be increased to 30%. By 2010, buildings should satisfy people's demands for quality housing and comfortable living, and building materials should be standardized and their supplies will be readily available. By then, energy consumption is expected to be reduced by another 30% and technology application increased to 35%.

While trying to develop high-technology building products within the country, China recognizes the need to import both technology and products. Government policies will continue to encourage local production and technology transfer. To a lesser extent, they will allow the importation of high-technology products not currently available from Chinese manufacturers. Therefore, Canadian products that meet the needs of the market, while having no local products to compete against, should fare well in this market.

Improvement of Energy-Efficient Building Products

Due to rapid economic growth and improvements in living standards, energy consumption in both residential and commercial buildings is growing much faster than in other sectors in China. In terms of energy use per unit of GDP, China has one of the most energy-intensive economies in the world. These increases in energy consumption, coupled with capital shortages and increasing energy costs, have all created tremendous interest in China in the area of energy-efficient building products.

More importantly, in an era of increasing sensitivity to the environment, China realizes the need to move toward greater use of energy-efficient and environmentally friendly building materials in the construction of buildings and houses (in China, the term "new building materials" or NBM is often used to refer to these more efficient high-tech products).

China's energy-efficient building materials market is said to be growing faster than the country's building products industry as a whole, with growth rates in the mid teens over the past few years. Based on unofficial figures from the Chinese government, the market size of the energy-efficient building materials market was estimated at $14 billion in 1999, a 24.8% increase over 1998. This accounts for about 18% of the total building materials market. Imports in 1999 amounted to approximately $481 million.

Table 6. Total Market Size for Energy-efficient Building Materials in China, 1997-1999

	1997 ($ millions)	1998 ($ millions)	1999* ($ millions)
Total Market Size	$ 8,467	$ 11,205	$ 13,992
Total Local Production	$ 8,154	$ 10,905	$ 13,639
Total Imports	$ 465	$ 490	$ 481

*estimate

Note: some NBMs and energy-efficient products are so new in China that there is not yet a HS code for them in China's Customs Directory. Finding detailed statistics on the import/export of these products is therefore difficult at best. The above figures are estimates of representative samples of some types of products that would qualify as environmentally friendly or energy-efficient.

Source: *Energy Efficient Building Materials in China*, U.S. Department of State, September 9, 1999.

Energy-efficient building materials are a new focus for China. The Chinese government is aggressively uniting all efforts to promulgate laws and regulations to encourage energy-saving and environmentally friendly practices. For example, the commitment to eliminate the use of earthen bricks in favour of more advanced building materials has helped to increase the demand for energy-saving and environmentally friendly building materials.

Furthermore, the MoC and the State Administration of Building Materials Industry (SABMI) are co-developing and enforcing a policy to use NBM for future housing developments in China. SABMI, in co-operation with the State Economic and Trade Commission (SETC), has announced proposals that would guide the building materials industry away from traditional building materials to greater use of more technologically advanced materials. This proposal has already been responsible for the closure of smaller, less efficient cement and glass plants.

Although the NBM industry is still in its infancy in China,[4] it has great potential for development, given the need for greater use of environment-enhancing products and practices. Increased demand for quality, affordable housing by new homeowners in China has also spurred the NBM market. For example, as the rate of home ownership increased, energy-efficient products will also gain importance. Canadian producers have experience in meeting stringent environmental regulations, and this expertise can be useful in China.

The NBM market is geared toward high-tech products, and is expected to provide opportunities for foreign companies. Nevertheless, Canadian companies should be aware that competition is fierce, as domestic firms, while limited in their level of technology, are quite aggressive.

Intelligent Buildings

Although introduced only 20 years ago, the area of intelligent building systems (IBS)[5] has increased significantly in China's construction industry. IBS products and technologies are being increasingly used with traditional, old-fashioned building equipment and management being superseded by more advanced, energy-efficient automatic equipment and high-tech management systems. Thus, computer-based control systems have become the rule in most new commercial and industrial buildings, generating significant energy savings while improving system performance and operability of buildings.

To date, China has completed about 1000 buildings that have some IBS features. The country invests $1.8 billion (10 billion yuan) annually in the construction of intelligent buildings, which accounts for 15% of the total construction investment, up 5% in the past decade. Over the next few years, the main driver for growth of IBS products will be the increased demand resulting from new construction, coupled with the desire for more energy-efficient and better-controlled buildings. Moreover, is the fact that the rapid development of intelligent buildings has attracted wide attention, and the Chinese government has listed intelligent building among key national R&D projects for the next two years. China has the potential to become, within less than 15 years, one of the largest markets in the world for IBS products and technologies.

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[4] For example, windows in Chinese homes remain simple single-glazed units with steel frames. As a result heat losses are substantial.

[5] IBS encompasses a wide variety of technologies and includes energy-management systems and building controls. Their function is to control, monitor and optimize building services, e.g. heating, ventilation, lighting, alarm systems and some electrical appliances.

Most of China is situated in the temperate zone but Southern China might have a greater need for IBS products and technologies due to the high temperatures in the region.[6]

Home Improvement, Do-it-Yourself and Interior Decoration Markets

Home Improvement and Do-it-Yourself

The home improvement and do-it-yourself (DIY) markets are emerging as rapidly growing sectors in China. Over the next five years, a predicted 4 million Chinese households will move into new homes, and 70 million households will undergo renovations.

Moreover, statistics indicate that more than 60% of urban households have begun to spruce up their houses, with the average cost reaching $3,500 (20,000 RMB) per household. The zest for interior renovation and decoration is particularly strong in large cities like as Beijing, Shanghai, Guangzhou, Harbin, Nanjing, Dalian and Chengdu, as well as in small and medium-sized cities. For example, in 1998 alone, Beijing residents spent more than $35 million (2 billion RMB) on housing improvements.

The growing interior renovations market can be attributed to the high-speed development of the national economy, and the improved living standards. Furthermore, China's rising income levels and growing appreciation for higher-quality goods should continue over the next few years, stimulating an increased market for luxury household renovation products such as wood products. The government is also encouraging consumption by issuing credits, by which residents can obtain loans to cover 90% of their total remodelling costs to a maximum of $27,600 for no more than five years at a determined interest rate. House decorations and interior applications should benefit the most, including flooring, doors, windows, cabinets, wall units and furniture.

With many area residents spending more money upgrading their apartments by adding new bathroom fixtures, kitchen equipment and decorative materials, a number of Chinese companies have made plans to open malls and "one-stop" stores to directly market building materials to developers and individual customers.

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[6] China's climate may be divided between the humid eastern region and the dry west. The humid east may be further subdivided between the warm and humid south and southeast, and the temperate-to-cool north and northeast. Much of the eastern region exhibits a monsoon pattern of temperature and precipitation. In general, temperature patterns in China are determined by north-south location, but there are some exceptions. South of the Qin Ling range, the average annual temperature is high and winters are generally mild; the average annual temperature drops rapidly north of the Qin Ling barrier, where there are long, cold winters, The highest average annual temperature is between 23 ^{o}C and 25 ^{o}C, while the lowest average annual temperature ranges from -10 ^{o}C to -7 ^{o}C.

Interior Decoration

The interior decoration and improvement market in China was valued at $18.4 billion in 1998, 50% of which is attributed to private households. This is expected to double to $36.4 billion in 2000. The interior decoration market has increased by 30% annually for the past 20 years. Guangdong province represents the leader in development trends for both domestic and foreign products, and is considered to be China's most efficient decorating building material base.

Chinese households tend to spend their money on interior decoration, since status continues to be conveyed by how the home is decorated, not by the home itself. Hotels were raised as the icon of luxury and the increasingly affluent households strive toward this image. As incomes rise, households will continue to spend more on interior decoration. In Shanghai alone, $2.2 billion was spent by residents for interior decoration in 1997, an average of $8,585 per household. In Beijing, spending is more than $1.8 billion a year. Developers realize that most households want to do their own interior design, so they sell "shell" apartments — with no flooring, wall coverings, kitchen cabinets, counters or bathroom fixtures. Interior decoration companies set up offices on the ground floor of new developments, or solicit new homeowners on site. Homeowners typically either hire a small contractor to purchase the materials and perform the finishing work, or select the materials themselves and then hire a contractor to finish the work.

Table 7. Output and Development Forecast of Major Decoration and Finishing Materials

Type of Decoration Product	Output in 1995	Demand * in 2000	Demand[f] in 2010
Indoor and outdoor walls:			
- Wallpaper and cloth	210 million m^2	250-300 million m^2	400 million m^2
- Building coating	660 400 tonnes	1 million tonnes	1.6 million tonnes
Doors, windows and pipes:			
- Special shaped products	61 thousand tonnes	254-304 thousand tonnes	508-610 thousand tonnes
- Plastic doors and windows	5 million m^2	30 million m^2	60 million m^2
- Plastic pipes	91 440 tonnes	406 400 tonnes	1 million tonnes
Floors:			
- Plastic floors	36 million m^2	80 million m^2	150-200 million m^2
- Chemical fibre carpets	4.5 million m^2	10-12 million m^2	50-80 million m^2
Suspended ceilings:			
- Mineral wool acoustic fibre board	8 million m^2	20-25 million m^2	40-50 million m^2
- Decorative gypsum plate	4 million m^2	7 million m^2	14 million m^2
Others:			
- Decorative stone material	80 million m^2	100 million m^2	150-200 million m^2

* estimate
[f] forecast
Source: *China's New Building Materials Industry* , http://www.chinaeco.com/esta.htm .

Demographics

Demographic factors such as population dispersion, the age composition of the population and the rate of household formation have a significant impact on the demand for housing.

China is the most populous country in the world. China's population stands at 1.2 billion people, about half of whom are under the age of 30. Over the next 10 years, population growth is expected to rise by 5% per year, and urbanization is to reach 34% in 2000 and 45% in 2010, requiring an additional 660 million m^2 of living space. As the country continues to experience rapid economic and population growth, demand for construction will increase.

China's population is distributed unevenly with more in the east (more than 300 persons per square kilometre) and fewer in the west (about 40 persons per square kilometer. The national average population density is 119 per square kilometer. The average size of households is 3.7 persons (See **Appendix B** for more detailed demographic data.)

In the past two decades, the income of both urban and rural residents has doubled. Moreover, the Chinese are increasingly saving a greater percentage of their income. In

1997, savings deposits of urban and rural residents reached $773 billion (4,628 billion RMB), more than 218 times that of 1978, with an average annual increase rate of 32.8%. Statistics for 1998 and 1999 show that the standard of living of both urban and rural residents continued to improve. As the people's living standards are on the rise, middle and high-income families are spending significantly more on remodelling and interior-decorating products.

The growing numbers of China's elderly will also require an adjustment to the construction of apartments and residences that cater to the special needs of the aged. It is estimated that by the end of 2000, 132 million Chinese — or approximately 10.5% of the total population — will be over the age of 66. The aged population is expected to grow by 3.32% annually, and by 2015 is expected to top 200 million. It is estimated that by 2025 and 2050, the total population over 66 will reach 280 million and 400 million, respectively, accounting for 18% and 25% of the total population. This phenomenon is more pronounced in cities. For example, by 2025, the total aged population in Beijing is projected to reach 4.65 million, accounting for 30% of its population. This population segment's demand for quality housing is high, and China is seeking ways to provide the social housing systems and specific services they need.

According to the Investigation and Study Division of the China Aging Population Association, there are only 42 000 homes for the elderly nation-wide, to accommodate less than 1 million people, accounting for less than 1% of the 132 million citizens over the age of 66. Demand for housing, apartments and homes serving the elderly is expected to grow significantly.

Opportunities

Due to the emerging nature of China's construction market, there are clear opportunities for Canadian companies to contribute their expertise and technology to the development of this sector. However, Canadian companies should keep in mind that exports of basic construction materials cannot compete with the low prices of locally produced inputs. Opportunities for Canadian exporters of building products therefore exist in the area of niche, high-quality and affordable building components. Some of these include:

- waterproofing materials
- energy-saving products
- marble
- tile
- modern sound-proofing systems
- bathroom fixtures
- fire safety, detection and security equipment
- air-conditioning systems
- elevators and escalators

- articles of stone, plaster, cement, asbestos
- parts of pneumatic elevators and conveyors

Foreign technology and expertise also in demand in China include:

- the production of clay for ceramics, not bricks;
- the use of waste materials such as fly and coal ash for the production of bricks;
- the production of chip- and wood-board;
- the production of material other than concrete for load-bearing walls; and
- the production of glass built into pre-reinforced concrete for separation walls.

Other particular segments of the building products market where commercial potential is thought to exist in China are listed below.

Plastics

Demand for plastic pipes — mainly PVC-U plastic tubes — in China this year will total 406 400 tonnes, with 335 280 tonnes for draining pipes and 71 120 tonnes for water-supply pipes. Today, plastic drainpipes are adopted in about 50% of indoor drainage pipeline systems, while plastic pipes are adopted in more than 20% of rain pipelines for exposed walls in newly built homes across China. It is estimated that the national demand for plastic pipes will hit 1 million tonnes by 2010. The application proportion of plastic pipes in 2010 will be:

- 80% of indoor drain pipes for newly built houses across China;
- 90% of wire-threading protection pipes for construction;
- 50% of rain pipes for exposed walls;
- 80% of water-supply pipelines in villages and towns;
- 20% of urban gas pipelines; and
- 15% of urban sewers.

Flooring

Demand for carpet and wood flooring is expected to grow significantly, competing for popularity with ceramic tiles.

Domestic carpets and other textile floor coverings currently have very little variety in terms of design. Chinese construction agencies choose such products based solely on product quality. End users tend to appreciate and buy European, U.S. and Korean floor coverings and carpets; of these, European brands rank first.

Sales of carpets with anti-static, flame-retardant, anti-poisoning, and wear-resistant functions reached 12 million m^2 in 1998, and are expected to reach 50 million m^2 to 80 m^2 million in 2010. The demand for plastic flooring was 80 million m^2 in 1998, and is

expected to rise to 150 million m^2 to 200 million m^2 in 2010. Domestic annual production is 160 million m^2.

Wood flooring is also in high demand in China, as new homes prefer the comfort of wood floors over cement, particularly in regions with high temperatures or damp winters. Hard maple and beech are the most popular temperate hardwood species for flooring.

Ceramics

Although China's ceramic production generally meets market demand, imported top-level ceramics will account for the greatest demand, since domestic products lack modern and suitable designs. Indeed, both their clear and glazed surfaces lag behind imported products. End users favour large, multi-coloured, and artistic ceramic tiles.

The demand for 40 million pieces of sanitary ceramics is largely met by domestic production, which stands at 36 million annually. However, only 10% is considered high-quality by international standards, thus creating a demand for foreign products. Demand for high-technology, high-class sanitary ceramics such as multi-function computer-controlled bathroom and sauna facilities is expected to increase. Japan, Thailand and the United States are the main competitors.

Wall and Ceiling Materials

In China, about 90% of the exterior walls are made of brick and concrete. In northeast China, because of the lack of good insulating materials and wall-construction techniques, walls are often built as much as one metre thick. The government recognizes that this represents a huge waste of building materials, and is encouraging the use of new wall materials.

Over the next five years, the development of new wall materials will be a high priority for China's building materials industry. Housing construction in 160 large and medium-sized cities are in the process of substituting new wall materials for the hollow clay bricks to achieve energy efficiency and housing improvement. The government is also promoting the use of lighter, space-saving materials. The prevailing new wall materials include aerated concrete; wire mesh light sandwich wall panels; GRC (glassfibre reinforced concrete) fibreglass; reinforcing concrete light wall panel; hollow clay brick; gypsum wallboard; slag concrete hollow brick; volcanic ash light concrete hollow brick; ceramic cavity block; gypsum brick; and PFA (pulverized fuel ash) brick. Guangzhou and Shenzhen are currently the two leading cities for the manufacture of new wall materials.

Wallpaper is making a comeback in China. The demand for wallpaper was 300 million m^2 in 1998, and is expected to increase to 400 million m^2 by 2010. Domestic production

is 400 million m^2 annually. Almost all four-stars hotels, deluxe apartments, villas and office buildings tend to use imported wall coverings and wallpapers.

Chinese contemporary architecture designers have a preference for imported ceiling materials in deluxe constructions and in those structures built in downtown areas. In some cases, investors prefer to use domestically made ceiling coverings to reduce their construction costs. Currently, ceiling decoration is a necessary part of any renovation and newly built structure. Ceiling materials are divided into two levels: one for high-standard ornamentation, and the other for middle- to low-standard restaurants, hotel lobbies, office buildings, malls, department stores, and almost all private decorating jobs.

Chemicals

Within the next five years, the use of new waterproof materials, which have adopted in urban permanent buildings, will increase to 40% (from 5% in 1998), consuming a total 35 million m^2. New waterproof materials such as asphalt felt or styrene-butadiene-styrene (SBS) and new polymer waterproof coiled materials (e.g. polyvinyl chloride) and waterproof coating and roofing materials (e.g. polyurethane) will be popularized in China's new construction projects. It is expected that by 2010, the proportion of new waterproof materials for urban permanent buildings will reach more than 80%. Guangzhou is an important market due to its high levels of humidity.

PVC building materials used for pipes, doors and windows, as well as sealed water-proof products, are also increasingly popular within China's new construction projects. It is expected that by 2010, the demand for chemical building products will double the level in the current year.

The government will impose restrictions on the use of face bricks, mosaic and glass curtain walls as exterior decoration, thus increasing the market share for paint. Paint has increased in popularity in China since it is less costly and better suited to the changing trends of exterior decoration. Consumption of high- and medium-grade paints in China reached one million tonnes in 1999, and is expected to rise to 1.6 million tonnes by 2010.

Advanced Building Products

To the extent that Canadian firms are able to anticipate market needs and provide solutions to those needs before they are available in large quantities locally, they will be able to find various export opportunities to China. Nevertheless, Canadian companies should keep in mind that once a technology is in China long enough to be part of joint ventures, or to be imitated by numerous Chinese companies, the duty rates will likely reflect a desire to protect local production and jobs.

Energy-efficient Building Products

China's construction boom, coupled with an energy-intensive economy and the Chinese government's intent to improve the environment, has created tremendous market potential for Canadian energy-efficiency technologies. Certain types of energy-efficient products have already become the product of choice in China's coastal cities.

The Chinese government is promoting the use of ecologically friendly products that use recycled waste as well as energy-efficient products such as high-grade thermally insulating building components, pumping pipes, concrete building blocks, breeze blocks, and PVC windows.

In the industrial construction area, opportunities include improved recovery of waste heat, gas, and steam; expanded use of cogeneration; improved industrial furnaces and kilns; better monitoring and control systems; the use of improved insulation; and other renovations in thermal and steam systems. Opportunities also exist for the provision of energy-efficient equipment such as boilers, electric motors, and associated electrical equipment.

In the commercial, office and residential segments, sales opportunities for energy-efficient building components currently exist in the area of systems controls, energy-efficient windows and doors, thermal insulation materials and sound-absorbing materials.

Canadian companies should nevertheless keep in mind that selected energy-efficient building products that present the best sales prospects for Canadian companies include products that either do not exist in China at present, or are not available in large enough quantities or high enough qualities. These products include:

- chemical building materials, including polyethylene chloride, PVC, ternary ethylene propylene rubber, chloroprene rubber and elastic asphalt;
- waterproofing and sealing products for windows;
- insulation, including mineral wool, glass wool and fibreglass products;
- new varieties of thermal insulation coating and fire-prevention coating;
- interior and exterior high-quality wall paints;
- plastic floor board and chemical fibre carpet resistant to corrosion, fire, wear, mould contamination and static electricity;
- green building materials, especially those that reuse discarded materials, or those with limited amounts of lead or other harmful materials;
- sheet rock and other lightweight, fire-resistant materials;
- compound aluminium and plastic pipes;
- central air conditioning for apartment buildings;
- independent family heating and hot water systems (boilers);
- natural gas appliances; and

- partition wall systems including gypsum board, light steel skeleton and finishing.

There are also significant opportunities for Canadian energy-saving expertise, since new insulation materials are currently only used in 10% of projects. One of Canada's strengths is its size and its variety of climates, which necessitate adaptations in infrastructure and construction development similar to China's needs.

Intelligent Building Systems and Controls

Intelligent building construction has been developing quickly in China, with intelligent technologies widely used in office buildings, commercial markets, financial buildings, museums and hospitals. To date, China has hundreds of designing institutes, which are qualified to design IBS.

The demand for IBS is particularly strong in Shanghai. In the past four years, approximately 100 million m^2 of IBS were constructed in Shanghai. Today, there are about 200 intelligent buildings in Shanghai, most of them located in the Pudong New Area. The Jiushi Fuxing Building has been nominated as an experimental unit by the municipal construction commission because it took into full account the development of intelligent equipment and technology in its design and construction, and employed various advanced technological equipment. Beijing, Guangzhou, Shenzhen and Xi'an are also regions with a high demand for IBS products and technologies.

There is clear potential for Canadian companies to participate in the further modernization of IBS technologies in China, considering that these technologies would introduce energy savings on a large scale across the country. Several foreign companies have already successfully entered the market for thermostatic controls in China's commercial buildings. While in the short and medium term, the demand for IBS technology (also referred to as "Building Management Systems and Controls or BMS technologies) will be higher in the commercial/industrial segments, the longer term looks promising for providing integrated control systems for water and air heating and cooling in all types of Chinese buildings, including residential.

Canadian companies should be aware that compatibility should be addressed as a major issue in this market. Imported IBS components are not always fully compatible with the appliances and systems that customers have already installed.

Windows and Doors

Historically, in most Chinese houses, steel and aluminium doors and window frames have been the standard issue. However, plastic/vinyl windows in China's construction market have been growing in importance for some years. While plastic windows will soon dominate in residential construction, it is to be expected that steel and aluminium windows will continue to be applied in non-residential construction in the medium term.

Chinese households are currently using aluminium and plastic windows for renovation and decoration.

Plastic and PVC windows and doors have been growing in importance for some years in China. Their perceived advantages include the fact that they are non-corrosive, easy to manufacture and much more economical. Demand for plastic windows and doors in China was 10 million m^2 in 1998, and is expected to reach a market volume of 45 million m^2 by the end of 2000. Today, with a national market share of 15%, the market volume of plastic windows in China is seven times higher than it was in 1994. Moreover, according to a recent report on China's chemical market, an annual growth rate of 98% is expected between 2000 and 2010, when demand in this market segment is expected to reach 60 million m^2. Northeast China, northwest China and other heating areas (regions where central heating is supplied) will account for the majority of the demand. By 2010, the share of plastic windows in these regions is expected to reach 70%.

It should be noted that China's demand for plastic doors and PVC windows continues to exceed supply. At present, China's domestic production is unable to fully meet the demand. This represents great commercial opportunities for Canadian exporters of PVC and plastic windows and doors.

Wood windows and doors account for the smallest market share since they are in lowest demand. Demand for wood windows is only 10 million m^2 per year. This is mainly due to the notion that wood windows and doors are luxury goods, because of the scarcity of wood. Consequently, wood windows and doors are mainly installed in buildings with high representative value (e.g. five-star hotels prefer imported wood doors and frames to local products). High-end users tend to choose wood, embossed wood, or plywood entry doors and hollow, veneer-covered interior doors. Houses in the countryside still use wooden windows and doors.

China's window market in 2000 (200 million m^2) can be broken down as follows:

- Steel/aluminium: 72%
- PVC/vinyl: 23%
- Wood: 5%

Glass doors, with such special features as insulation, aesthetic value, and soundproofing are becoming the choice of the moment for modern offices, shops and malls.

Another factor of great significance for the Chinese window market is the introduction of new energy-saving standards in buildings until the year of 2010. Environmental and energy-saving considerations have prompted the government of China to promote plastic windows with interior steel rods in projects nation-wide, while restricting the use of hollow-steel windows. According to the 9th Five-year Plan (1996-2000), energy

saving should have reached the 50% mark by this date. It was proposed that plastic windows should be installed in 50% of all residential buildings in the northeast, north and northwest of China by 2000.

Finally, various Chinese construction departments have indicated that the manufacturing of door and window frames provides the most potential for Canadian companies wishing to invest in joint-venture partnerships with local manufacturers to serve the domestic market. Local industry representatives are well-disposed toward Canadian technology and products, and are convinced that the high quality and energy efficiency of Canadian products would serve the local markets well.

Value-added Wood Products

Apartment buildings in China have typically brick-filled columns. Over the last few years, forests in China have been reduced; wood has since been considered as a scarce commodity. The Chinese government has not restricted the use of wood frames in house construction; however it does encourage the use of alternate material.

Fuelled by economic growth, China's demand for wood products is expected to increase. Refurbishing old houses, new residential construction and interior decoration are becoming increasingly popular. Imported panel and wood products for various construction applications, including cabinet work, kitchen cupboards, walls and floors, show potential for growth. Although prices are higher for imported woods, they are usually justified by their recognized durability and quality.

Wide-leaf timber sells well in China, and demand for decorative timber, such as Manchurian tree and basswood, is expected to remain strong. For interior decoration, Chinese prefer wood with visible grains and no knots. Wood interior decoration is considered a sign of luxury in China.

Prefabricated Homes

Very little information is available about this sector. Only a few Canadian firms have entered the Chinese market. Foreign firms have been successful in selling wood-frame modular houses priced in the range of $100,000 to $120,000. It is estimated that only 3% of the population can afford these prices, but that the raw numbers offer significant opportunities.

Moreover, Chinese prefer masonry over wooden frame, due to historical prejudice and misbeliefs about fire-retardant properties. Therefore, commercial potential is thought to be more promising in the area of prefabricated metal buildings.

Remodelling and Interior Decoration

Potential demand for materials exists in the areas of decorating new homes, remodelling privatized state-owned housing, decorating vacant luxury buildings, and supplying aging buildings that are being remodelled or renovated. Although China has many domestic producers of interior decorating materials, the industry does not possess advanced manufacturing technology. Opportunities for exporters of Canadian building products exist in the provision of high-quality building components such as bathroom fixtures, kitchen cupboards and flooring.

Construction Services

Despite the large number of domestic design, engineering and consulting firms, there is great demand for projects that require high-tech and high-quality imported services. The following opportunities have been identified has having good potential for Canadian construction services providers in China:

- residential planning (regional, urban, housing district);
- supervision and engineering consulting (represents a new and fast growing field in China)
- architectural design;
- interior design (of products for interior use);
- property appraisal (emerging field);
- property insurance (emerging field);
- environmental protection/energy conservation;
- municipal government housing administration and management;
- preliminary design work and construction management projects in office and luxury apartment towers, hotels, shopping centres, exhibition centres, food-processing plants, various kind of manufacturing facilities; and
- education programs for any of the above.

Canadian companies will also find that China's needs for human-resource development for the construction industry are massive. Due to the growing volume of the country's construction industry, and with the rapidly changing business environment, there is an increasing need for educational and training services to produce construction managers, engineers, technicians and skilled workers.

Finally, due to recent construction disasters, the Chinese government is in the process of raising the national standards for new construction, thereby allowing foreign products to be more competitive. Expertise in quality control and design are among foreign developers' top competitive advantage.

Canadian companies should be aware that foreign firms seeking to offer engineering and construction services in China are now subject to fewer restrictions than in the past.

Historically, to protect and promote domestic construction firms, the MoC stipulated that foreigners who wanted to set up engineering contracting firms, real estate development firms, construction consulting firms, or engineering cost-consulting firms had to have a Chinese partner. Furthermore, these joint-ventures were encouraged to bid for joint contracting and subcontracting work, but could not bid on most domestic construction projects. Foreign firms were therefore restricted to doing preliminary design work, which had to be approved by a Chinese design institute. They were also allowed to participate only in engineering consulting projects that were entirely foreign invested. The result of these restrictions is that foreign firms were only able to compete for an extremely small percentage of China's numerous construction projects.

In April 2000, the MoC allowed wholly foreign-funded engineering design and consulting firms to offer consultation services for advanced technology projects and environmental engineering. Consequently, foreign architectural firms are today increasingly active in the market. This will prove beneficial for Canadian firms offering construction services in China.

Actual and Planned Projects

The news of China's expected entry into the WTO has triggered a new wave of investment from both China and abroad. The development of various new construction projects is expected to follow — particularly in the area of construction of commercial buildings in provincial capitals and autonomous regions — offering great opportunities for Canadian providers of construction products and services.

For a comprehensive listing of pending and ongoing construction projects in China, exporters are encouraged to consult the SinoProject information network site at **http://www.sinoprojects.com**. This Web site, which was formally launched on May 18, 2000, was jointly developed by the Canadian company AEA International Business Network, the China Construction Industry Association, and the Ministry of Foreign Trade and Economic Co-operation (MOFTEC). By accessing the SinoProjects Web site, Canadian companies will find opportunities to invest in and supply equipment and technology to China's massive construction industry.

The following are examples of construction projects that may present some commercial opportunities to Canadian building product or construction service exporters:

Retail and Commercial Development

Panda Mall, Sichuan Province

Sichuan Province plans to build the *Panda Mall*, a modern 42 802 m^2 shopping centre to be located on Shuncheng St. in downtown Chengdu. The estimated total investment of this project is approximately $450 million (2.5 billion RMB). The *Panda Mall* will

provide various functions such as shopping, tourism, recreation, entertainment, restaurants, residences, offices, cultural activities, and conference/exhibition facilities. Chengdu Panda Mall Co. Ltd. plans to build it to U.S. standards, and expects to import material and equipment for the development of various buildings, including the Underwater World, cinemas, game arcades, five-star hotel, etc.

The following is a partial list of projects to be undertaken:

- Underwater World (area: 8000 m^2)
- Supermarket (13 400 m^2)
- Food & beverage plaza (1800 m^2)
- Famous-brand showcase (to operate 200 well-known franchises)
- New Chengdu shopping city

For detailed information, companies can contact:

Chengdu Panda Mall Co. Ltd.
No. 1606, Zhu Feng Hotel
Chengdu, Sichuan, P.R.C. 610015
Tel.: (86-28) 661-9614 or (86-28) 676-1522
Fax: (86-28) 661-4493
Contact: Yang Jun, Vice President
E-mail: panda@mail.sc.cninfo.net

Tianzhu Export Processing Zone

The Chinese government recently approved the establishment of Tianzhu Export Processing Zone in Beijing, which is located at Beijing Konggang Industrial Zone, one kilometre west of Beijing International Airport. Several warehouses and other buildings have already been built in the zone. Other facilities including banks, insurance companies, office buildings, exhibition centres, and entertainment facilities are expected to be built soon.

Tourist Resorts

Xuejiadao provincial-grade tourist resort (Shandong)

A $15 million to $30 million tourist resort is to be developed in Shandong. The project, *Xuejiadao provincial-grade*, will include a comprehensive and multi-functional tourist resort for sight-viewing holiday and fishing sports. The planned project will consist of the construction of various accommodations and facilities such as a central restaurant, a hotel, a conference centre, an ocean sports centre, an underwater world, an ocean tourist village, an entertainment centre, an international angling area, villas and a seashore park.

Qigndao Laoshan Yangkou tourist resort (Shandong)

Shandong plans to develop the *YangKou Tourist Resort*, resulting in the construction of a villa, condominium hotels, as well as large-scale recreational projects. The resort will be a well integrated international tourist resort with mountain and ocean views/access and a nearby/adjoining community. The total cost of this project is estimated at $30-70 million.

Old-age Social Service Facilities

A first of its kind old-age care centre, the Beijing Tai Yang Cheng (Beijing Sun City), is currently under construction and will serve as a model facility for old-age care. Completion of this centre is planned for the end of 2000. The centre will provide housing, medical care, entertainment, and shopping services, etc., for the elderly. This represents the Chinese government's pilot project to meet the rising demand and growing expectation for social services of this kind. It is anticipated that additional old-age care centres of this kind will be built across China.

Energy-efficient Building Projects

Perhaps some of the most important and favourable projects for Canadian building products exporters in China pertain to the development of energy-efficient buildings. Canadian expertise is already behind a project aimed at increasing China's capacity to manage its environment and improve the quality of air in residential and commercial buildings while reducing energy consumption.

In 1996, Canada was selected by China to be the leading partner in establishing the Centre for Energy Efficiency in Buildings (CEEB). The six-year project (1996-2002) is being jointly financed by the Canadian International Development Agency (CIDA) and the Construction Ministry of China.

Activity under the CEEB includes several demonstration projects: a renovation project in Harbin; a demonstration home in Tianjin; technical assistance related to heat conservation in projects in Harbin and Changzhou as well as future participation in a townhouse project in Beijing.

To date, some 20 Canadian products — ranging from walls, doors and windows to heating and ventilation equipment and technology for measuring air and moisture infiltration — were selected for implementation in China.

In addition to collaborating on the demonstration projects, Chinese and Canadian energy-efficiency specialists will work together to achieve the following:

- recruit and train administrative and technical personnel;

- develop a management information system and incentive programs to encourage energy conservation; and
- draft energy-efficiency policies, regulations, codes and standards.

Several types of co-operation are being considered for the entire project or in individual phases of the project. For more information, companies can either contact the Canadian International Development Agency, China Division or the executing agency for CEEB, Dessau Soprin.[7]

Construction Services

China's Chongqing municipality has recently called for the city's construction market to be opened up to foreign participation in order to build the city into a modern metropolis with advanced urban facilities and a beautiful environment. Chongqing is currently calling for reputable foreign and domestic planning, surveying, designing, construction and supervisory institutions through public bidding in order to promote architectural construction designed to enhance Chongqing's reputation for scenic mountains and rivers. Chongqing will invest a total of $40 billion (240 billion RMB) in 107 projects that are to be given priority in the development of Western China. Of these, 50 are already under construction, and the remaining 57 will start in late 2000 or 2001. Chongqing has been engaging in large-scale construction over the last few years. In 1999 alone, construction investment reached $5.3 billion (29.9 billion RMB).

COMPETITIVE ENVIRONMENT

Local Capabilities

Canadian suppliers of building products face considerable domestic competition in China. Chinese domestic production of building products meets basic market demand. However, in many cases, domestic-made building materials cannot meet the requirements of modern construction or medium- to high-level consumers. Imported products therefore provide wider choices and better quality.

There are about 3787 manufacturers of building materials in China (A sampling of some of these manufacturers are listed in **Appendix C**). In Shanghai alone, there are approximately 50 000 to 70 000 building materials dealers, 1700 of which are manufacturers. In the northeast, the Liaoning Province's building materials industry has nearly 100 medium and large enterprises. Window, door and glass industries are

[7] For contact information regarding key organizations mentioned in this report, see **Key Contacts and Support Services**.

well-developed in Liaoning, but the province is looking to access new technology in order to improve quality.

Domestic competition falls into several categories: state-owned enterprises or SOEs (typically quite large), collectively owned enterprises (medium-sized), private or quasi-private companies, and joint-venture enterprises (foreign-invested). Although a significant portion of the national production of building products comes from the SOEs, today, an increasing number of building materials are generated by rural and township enterprises. SOEs tend to have products of poor quality that do not compare with foreign products. Chinese-foreign joint ventures generally make the more advanced building materials with technologies from their overseas partner — they increasingly use modern management, modern manufacturing techniques and cutting-edge technology. These joint-venture companies represent the stiffest competition for Canadian companies seeking to enter this market.

Listed below are some of China's leading manufacturers of new building materials (NBM) and energy efficient building products. As large state-owned firms, they are strongly supported by the government.

China New Building Materials Group

As China's first new building materials enterprise, this group manufactures many kinds of building materials — for walls, insulation, waterproofing and sealing. It has wholly owned subsidiaries throughout China, two design and research institutes, a real estate development company, and a consulting company.

Beixin Building Materials Group Co. Ltd.

This company is one of the major subsidiaries of China NBM group. At present, the company's leading product, gypsum plank, enjoys a 50% market share in China. In June 1998, they started production of a new product, mineral wool acoustic plank. The company is publicly held, and expands by purchasing other companies.

Shanghai Huili Group Co.

This company is a large state-owned manufacturer of interior and exterior paint, special paints including waterproof paint, and chemical building materials. Its products have been recommended for economic housing projects by the State Commission of Science and the MoC. It has become one of the key manufacturers in newer chemical building materials.

Shenzhen Fangda Industrial Co Ltd.

This company is mainly engaged in designing and manufacturing of glass walls, doors and windows, decorative veneer, safety and fireproof equipment, special structural and other high-tech materials, and NBM for commercial and residential housing. It is one of the biggest glass-wall manufacturers in China, with both colour glass wall and aluminium alloy glass wall, holding a 13% share of the domestic market. SFIC Ltd. is the first NBM enterprise to obtain ISO 9001 quality certification in China.

While the quality of many domestically produced materials is currently below international standards, local products enjoy significant price advantages. In addition, driven by the need to focus on profit, Chinese companies are increasingly competitive as they gain greater access to funds and become more market-oriented.

China's building materials industry has more than 2000 kinds of products, including traditional and new types of building materials, non-metal mine products, inorganic non-metal materials and other renovation materials.

PVC double-paned windows, although relatively new to China, have German-Chinese joint ventures supplying 60% of the market (in the large coastal cities) with local imitators filling out the remainder of domestic production. Some Canadian firms have been able to supply imported windows in small quantities, but are often being beat on price by these duty-free, locally produced goods.

One of the most-developed segments within China's building materials industry is ceramics. China's ceramic production has a long history, and has recently been enjoying a new momentum as the industry expects to produce 9.9 billion pieces of ceramic products by the end of 2000. Further, a sound and comprehensive ceramic industrial system has taken shape nation-wide, involving research and design institutes, colleges, and a large group of specialized ceramics enterprises. China's key ceramics production bases nation-wide are located in Tangshan and Handan in north China's Hebei Province, Zibo, Yixing and Jingdezhen in Shandong, as well as Jiangsu and Jiangxi provinces.

Regionally, the city of Wuhu in Anhui has become a new industrial base for building materials in China. Many building material products from this city ranked first in sales volume across China in 1999. Billions of dollars have recently been invested to develop an International Building Material City in Wuhu. The city has thus become the biggest base of production, sales and technological innovation of building materials in China.

Construction Services

Unlike some developing countries where there is a real shortage of experienced construction engineers, China has a well-established system of design institutes that

can handle almost any type of project. There are approximately 2000 registered architectural institutes and 30 000 architects in China. The majority of architectural work in China is done in design institutes and construction conglomerates. While the quality of the work may not be up to world standards, it is often sufficient for China's needs, and is considerably less expensive than services that are provided by foreign firms.

Nonetheless, government officials and Chinese businesses appreciate more sophisticated architectural design, and are now increasingly seeking out foreign involvement, especially in the area of advanced technology and design ideas.

Wood Products

There are currently 7713 wood material processing enterprises in China, along with 8062 artificial wood production enterprises (producing such materials as artificial wood, polywood, fibreboard and shaving board).

Panel production in China includes plywood, particleboard and medium density fibreboard, with plywood accounting for more than 40% of all panel production. China is also Asia's largest producer of medium-density fibreboard. However, most panel manufacturers are either medium- or small-scale producers (small-scale mills with less than 30 000 m^3 capacity per year), which use old, domestic equipment that needs updating.

International Competition

Canadian manufacturers of building materials face intense competition from a host of foreign companies, mainly from Japan, Taiwan, Germany, Italy, Hong Kong, Korea, the United States, Australia, the U.K. and France. According to import data, the Italians and Spanish are very strong exporters of marble, stone, granite and tile products; the Japanese, Belgians and Taiwanese are top suppliers of glass products; and the Japanese and Germans are top suppliers of sealants.

For energy-efficient building products, increasingly strong competition exists from exporters in Germany (particularly in double-paned windows), Japan, Europe, Korea, Taiwan and the United States.

In the area of IBS, Hong Kong represents one of the key suppliers of such products/technologies. Comtech, a Hong Kong-based systems integrator, has been actively implementing several significant intelligent building projects in China (e.g. the Construction Bank of China's new headquarters in Beijing and the Industrial and Commercial Bank of China's Beijing headquarters).

Canada also faces strong competition in the wood building products market. Southeast Asian competitors include Indonesia and Malaysia, China's two largest suppliers of

solid wood products (mainly tropical hardwood). For temperate species, Russia, the United States, Hong Kong, New Zealand and several European countries are all vying for a share of the huge Chinese market. Individual buyers tend to prefer imported wooden doors and frames, and U.S. wood predominates in this sector.

Prefabricated homes represent a very small market in China, and only a few foreign companies have ventured in commercial trade within this area. These are mostly firms from the United States and Australia.

The Chinese construction services market opened to foreign companies in 1993. In more than a decade, foreign enterprises from Australia, the U.S., Japan, Italy, Korea, Singapore, Malaysia, Hong Kong, Macao, Taiwan, France, Germany, the U.K. and Finland have invested in this market. Although Hong Kong and Japanese engineering and construction companies have a successful history in China due to cultural similarities and physical proximity, imported influences in architectural design are becoming increasingly popular in China. Following Hong Kong and Japan, architects from Taiwan, the U.S. and Canada account for the majority of foreign participation in this market.

Furthermore, to date, more than 5000 overseas real estate enterprises, or 20% of the country's total, have participated in real estate development in China. Annual overseas investment in real estate is now valued at more than $700 million (4 billion yuan).

Canadian Position

The ongoing boom in China's construction industry represents tremendous opportunities in the building products market for Canadian businesses. While many Canadian companies are paying this market the attention it deserves, only a handful of Canadian companies are actively pursuing the opportunities in China.

Although China currently represents Canada's 15th -largest market for building products, it remains Canada's fastest-growing export market of housing-related products.

In the area of building materials, Canadian products with the most potential in China include laminated glass, sanitary wares and fixtures, plastic window frames, wood floorings and coverings, architectural hardware, carpeting and coatings. Energy-efficient and environmentally friendly building materials from Canada — including superior insulation, high-performance windows, roofing materials, weather-resistant sidings and state-of-the-art heating, cooling and ventilation equipment — are also highly sought after by the Chinese, further enticing Canadian firms to explore this market.

It should be noted, however, that many Chinese firms have not sought out Canadian companies due to language difficulties and a lack of familiarity with Canadian

producers. Awareness of Canadian products is low in China, and Chinese companies complain about the limited access to Canadian product information. Recent polls show that over 75% of Chinese are unfamiliar with the quality of foreign products.

Moreover, in many instances, imported products are significantly more expensive (30% to 40% higher) than domestically manufactured alternatives. In addition, when import tariffs and transportation costs are added, price-sensitive contractors will often purchase the locally produced alternative.

As a result, value-added exports will continue to be a sector in which Canadian exporters should compete. Moreover, services such as lifetime warranties, free repairs, or free installations are greatly appreciated by Chinese consumers, since they rarely get this level of service for products made in China.

Table 8 shows Canadian exports of selected building and construction products to China from 1996 to 1999. So far, Canada has been very successful in exporting windows and doors to China. During the last few years, Canada remained China's third leading exporter of plastic doors and windows and their frames. Shipments to China grew significantly between 1996 and 1999, reaching a value of close to $1.4 million in 1999, expanding by more than 16 times since 1996.

With local Chinese and other Asian producers capturing more of the lower-end market for building products, Canadian companies have geared themselves toward greater specialization in high-quality, value-added building products. Accordingly, it is expected that Canadian exports of building materials and technologies will continue to grow, but most successful exporters will remain highly specialized.

Table 8. Canadian Exports of Selected Building Products to China, 1996-1999

Building Product	1996 ($)	1997 ($)	1998 ($)	1999 ($)
Doors, Windows, their Frames and Threshold for Doors – Plastic (HS 392520)	77,636	36,415	1,375,476	1,350,560
Doors, Windows and their Frames and Thresholds for Doors – Iron or Steel (HS 730830)	2,349,043	248,359	157,950	1,711,762
Windows, French Windows and their Frames – Wood (HS 441810)	23,921	1,185	94,926	33,877
Aluminium Doors, Widows and their Frames and Thresholds for Doors (HS 761010)	690,384	1,671,388	647,375	46,811
Doors, Door Frames and Thresholds – Wood (HS 441820)	436,000	569,018	435,648	519,947

Building Product	1996 ($)	1997 ($)	1998 ($)	1999 ($)
Laminated Beams/Arches, Panels and Prefabricated Partitions – Wood (HS441890)	349,434	375,595	1,145,019	535,273
Shingles/Shakes – Wood (HS 441850)	4,257	881	1,383	n/a
Parquet Panels (HS 441830)	280,801	14,168	71,404	133,502
Floor, Wall and Ceiling Covering – polymers of vinyl chloride (HS 391810)	210,084	124,483	23,667	68,180
Articles of Heat Insulating or Sound Absorbing Mineral Materials – Excluding Asbestos Cement (HS 680690)	441,775	2,749	4,473	958
Prefabricated Buildings [1]	7,536,220	6,802,817	4,383,656	3,390,288
Paint Products [2]	4,435,828	1,935,271	4,284,754	6,579,887
Carpets (HS 57[3])	608,100	816,920	169,812	402,324

[1] includes: HS 681091 Prefabricated structural components for buildings
HS 730890 Structures; plates+shapes for structures (iron/steel)
HS 761090 Aluminium structures, parts used in structures
HS 940600 Prefabricated buildings ("industrialized buildings")

[2] includes: HS 320810 paint/varnish; polymer; non-aqueous
HS 320910 paint/varnish; polymer; aqueous
HS 321000 other paint/varnish
HS 321290 pigment for paint; dyes
HS 321410 mastics and painter's fillings

[3] includes: HS 57010, 570190, 570210, 5470220, 570231, 570232, 570239, 570241, 570242, 570249, 570251, 570252, 570259, 570291, 570292, 570299, 570310, 570320, 570330, 570390, 570410, 570490, 570500.

Source: Source: TradeStat, 2000 .

Construction Services

It is difficult to assess market share among Canadian construction services firms currently operating in China because in many cases, the information is proprietary.

However, it is fair to say that during the last few years, Canadian construction service providers, such as engineers and architects, have gained increased access to the Chinese market and have enjoyed a relatively more co-operative and open relationship with the Chinese government than in the past. These professions have operated in the Chinese market mainly through joint-venture operations. However, China continues to limit the operations of foreign-service companies through restrictions on where firms

can operate and on how many foreign firms can operate, and through regulations, including licensing requirements that discriminate against foreign-service firms. Canada is working as part of the WTO accession process to moderate or remove these restrictions. In the course of bilateral WTO accession negotiations, Canada succeeded in obtaining commitments to moderate or remove these restrictions once China is in the WTO, particularly for financial, telecommunications and professional-services sectors, such as construction engineering and architectural services.

Competitive Advantage through Canadian Government Policies and Initiatives

Canadian International Development Agency Industrial Co-operation Program

Since 1982, the Canadian International Development Agency's Industrial Co-operation Program (CIDA-INC) has been actively promoting Canadian participation in China's socio-economic development. CIDA-INC offers cost-sharing services, for feasibility studies, project development and project implementation, to companies considering investing in China through joint-venture arrangements or wholly owned ventures. CIDA-INC's interests are mostly in projects involving social impact enhancement, such as low to medium-cost housing.

Export Development Corporation

Export Development Corporation (EDC) is Canada's official export credit agency, facilitating Canadian trade with over 200 world markets. EDC's first transaction with China took place in 1980 and since this time EDC customers -- Canadian companies of all sizes -- have concluded over $5 billion of business in China. A variety of EDC trade finance services have been employed in the China market. Financing is traditionally offered on a case-by-case through lines of credit established with select Chinese banks. Export financing may also be considered via direct buyer loans to creditworthy companies which have Chinese government authority to borrow funds abroad. In addition, EDC export and investment insurance programs provide exporters with protection against a variety of risk, both commercial and political. Performance security and contract bonding programs also help exporters by providing exporters with the ability to free up working capital while meeting bonding requirements during the execution of commercial contracts.

Canadian Commercial Corporation

The Canadian Commercial Corporation (CCC) gives Canadian companies access to financing and better payment terms under the Progress Payment Program (PPP). The PPP concept was developed as a partnership between major Canadian financial institutions and the CCC. It enables the exporter's bank to open a project line of credit for the exporter's benefit, based on CCC approval of the project and the exporter's ability to perform. The CCC will also act as a prime contractor on behalf of Canadian

small and medium-sized enterprises, giving those businesses increased credibility and competitive advantage.

Program for Export Market Development

The Program for Export Market Development (PEMD) helps Canadian companies enter new markets by sharing the costs of activities that companies normally could not or would not undertake alone, thereby reducing risks involved in entering a foreign market. Eligible costs and activities include market visits, trade fairs, incoming buyers, product testing for market certification, legal fees for international marketing agreements, transportation costs of offshore company trainees, product demonstration costs, promotional materials, and other costs necessary to execute a market development plan. Activity costs are shared on a pre-approved, 50/50 basis.

The PEMD refundable contribution ranges from $5,000 to a maximum of $50,000. Preference is given to companies with fewer than 100 employees for a firm in the manufacturing sector and 50 in the service industry, or with annual sales between $250,000 and $10 million. Other components of the program include international bid preparation (Capital Project Bidding) and, for trade associations, developing international marketing activities for their membership. For additional information visit http://www.infoexport.gc.ca/pemd-e.asp or call 1-888-811-1119.

WIN Exports

WIN Exports, a database of Canadian exporters and their capabilities, is used by trade commissioners around the world and by Team Canada Inc partners in Canada to match Canadian suppliers with foreign business leads, and to share information on trade events. To register your company in WIN Exports or for more information, visit http://www.infoexport.gc.ca/winexports/menu-e.asp or call 1-888-811-1119.

PRIVATE-SECTOR CUSTOMERS

Commercial property and project owners and foreign developers with Chinese affiliations represent the most important group of private-sector customers for building products. (See **Appendix D** for a list of selected companies/developers.)

Private-sector end users make up a small but growing portion of the building and construction products market. (See **Appendix E** for a list of construction companies in China.) In the past, there were no private contractors in China; SOEs did most of the construction. Today, some private construction engineering companies — previously small labour contractors, specializing in residential and commercial buildings, hotels and real estate — are legally able to compete with the big state-run construction companies, but most find it too difficult since they are relatively small. To reduce costs,

they generally use domestic and lower-grade imported products. Finally, other customers include new wealthy families and individuals who can afford to purchase thier own apartments.

Because imported products are relatively more expensive due to high taxation, high distribution costs, and the low labour costs of domestic production, Chinese customers tend to buy locally produced products, including joint-venture products (which are an average of 20% to 40% cheaper but not as sophisticated as imported products). Many end users also prefer to buy semi-finished material and finish it themselves, to reduce costs and to get a better product fit. Foreign-invested projects such as top-quality hotels, high-grade housing and international-grade office space and luxury villas tend to use larger percentages of imported materials since locally produced goods are generally lower in quality.

Contractors, architects and developers list price, quality, design and after-sales service as the major factors in their selection of building materials.

In the area of construction services, Chinese clients are still not totally familiar with employing foreign consultants. Because foreign consultants charge more expensive fees, many of their services are primarily funded by foreign-invested projects. Foreigners typically do not compete with Chinese service providers for Chinese-funded projects.

Building Materials Superstores

Historically, most building materials have been sold in hundreds of thousands of small shops that typically offer a limited selection of goods in small quantities, while specializing in only a few items. In Beijing, Tianjin and Shanghai alone, there are more than 17 000 such shops. This profusion of small stores that rely on a weak distribution network has presented a difficult challenge to foreign exporters seeking to efficiently enter the market.

On the other hand, over the last few years, China has seen the establishment of several building materials supermarkets, very similar to the Home Depot chain in North America. A few names are Jui Bai Home Centre, Hao Mei Jia Home Centre, Dongfang Jiayuan Homecentre, and B&Q (a British-invested venture). The development of these superstores is promising news for exporters of building products, because they offer modern sales outlets for a wide range of building materials.

PUBLIC-SECTOR CUSTOMERS

In China, the largest customers for building products and construction services are local governments, which control the infrastructure and major projects in their particular

localities. Price and quality, nationality and familiarity of the products are important factors in making procurement decisions.

Government Organizations

The Chinese market has become increasingly decentralized with most business being conducted at the provincial and regional levels. However, the central authorities continue to review high-value major contracts.

The MoC formulates principles, policies, and regulations for engineering construction, urban construction, construction of villages and townships, the building and real estate industries and municipal engineering. It provides relevant development strategies, industrial policies, reform schemes, medium- and long-term plans and guidance for their implementation. Any foreign contractors wishing to enter China's construction industry must be approved by both the MoC and the concerned municipalities.

It should be noted that the MoC has recently decided to allow solely foreign-funded engineering design and consulting firms or agencies to engage in consulting services on some special engineering design within the territory of China. Such firms or agencies are now allowed to give consulting service in relation to special design for integrated architectural intelligent systems, architectural decoration, and environmental engineering design.

Similarly, the Beijing municipal government has recently revealed that the capital city will further open its construction market. From now on, contractors for all large construction projects will be selected by means of international tender. The areas covered include surveying, planning, design, work inspection, and purchase of key materials and equipment. Some of these areas (such as planning and work inspection) were previously closed to foreign participation.

Government Procurement Regulations

Government procurement is a decentralized process with each ministry or other government body establishing its own procurement guidelines. Business with China's government is usually conducted through state-owned/controlled companies affiliated with a particular ministry. China's government procurement practices are often not consistent with open and competitive bidding. Chinese government procurement is, for the most part, non-transparent. Purchases for virtually all construction projects in China are subject to at least one, and usually several, approvals from several levels of government.

Like many countries with developing procurement markets, two types of procurement exist in China:

- procurement funded by the World Bank or other international organizations (e.g. the Asia Development Bank); and
- procurement funded by the Chinese government.

China continues to protect domestic suppliers, often affording preferential treatment to domestic bidders on open tenders. The Chinese government also often requires foreign suppliers bidding on local contracts to implement a domestic component to their application (for example, through investment, technology transfer or counter-trade concessions). In general, contracts worth more than $148,000 are put to public tender. Foreign suppliers are normally not permitted to bid on domestic procurement contracts.

For construction services, procurement is typically done by developers, in conjunction with architects and construction companies. Hong Kong, Macau and Taiwan-based companies are the most active in foreign-funded Chinese projects.

China's New National Construction Tendering Laws

In the last few years, the Chinese Government has stepped up its efforts to battle corruption in the construction sector by encouraging open bids to avoid under-the-table deals. Effective January 1, 2000, China regulated its tendering system with a new National Tendering Law, which affects both local and foreign bidders. This new law was originally publicized on August 30, 1999 and formally implemented at the start of the year, with the intent to regulate project-procurement activities and minimize corruption. As the first state-level law related to tendering, it is seen as one of the milestones for shifting China's planned-economic system to a market-oriented one.

Key points of the Tendering Law that affect both Chinese and foreign developers and contractors include:

- Open and selective competitive bidding is a requirement for awarding infrastructure and other projects partially or wholly funded by foreign funds.

- Foreign developers/contractors who wish to procure projects in China must first obtain project-oriented prequalification, while foreign contractors must obtain a Qualification Certificate that is valid for five years.

- Qualified foreign developers/contractors are allowed to bid for projects financed wholly/partially by foreigners. For locally financed projects, however, foreigners can only bid in the form of a joint venture with local enterprises.

According to the Tendering Law, qualified foreign developers/contractors are allowed to bid for the following projects:

- projects directly invested by foreigners (organizations, governments, individuals, etc);
- projects financed with loans made entirely by IFIs that require open competitive bidding;
- projects financed by a joint venture between Chinese and foreign investors, when the local contractors cannot execute the work on their own for technological reasons;
- projects invested by local entities, when the local contractors are incapable of executing it on their own.[8]
- all infrastructure projects adopting the build-operate-transfer (BOT) scheme.[9]

In addition, the Chinese government strongly encourages local key contractors to form joint ventures with foreign contractors to bid for any kind of international and local projects.

As a result, from now on, all large-scale construction projects in China are now decided by international competitive bids, with foreign and domestic construction firms receiving equal treatment. In fact, the number of corruption cases involving the construction industry continues to decline. In 1998, authorities uncovered 1052 such cases, compared with 4076 in 1995.

MARKET LOGISTICS

Channels of Distribution

Direct Sales

Under current Chinese law, foreign companies are not permitted to engage in direct trade within China, other than for the direct marketing of goods that they themselves have manufactured within China. Therefore, Canadian exporters seeking to access the Chinese marketplace must do so through the use of a Chinese domestic agent or

[8] When bidding for projects under this category, foreigners are required to form a joint venture with local contractors, subject to the approval of the central or provincial construction administrative authority.

[9] Since the end of 1996, BOT projects have been awarded to foreign developers only after open competitive tendering, while previously they were awarded through direct negotiations.

distributor; joint-venture arrangements with Chinese partners; or locally established, wholly owned ventures.

Distributors and Wholesalers

The challenges facing distribution in China are numerous. Although China now operates as a market economy, many distributors and wholesalers are still inexperienced in meeting demand with efficient supply. Therefore, Canadian suppliers must work closely with the local distributor in the supply-chain management, to make sure that the products are always available to consumers in the retail outlets.
In addition, many distributors in China like to demand exclusive distribution rights in a large territory. However, since China is highly regional, these relationships are hard to cultivate beyond a certain region. Therefore, once a Canadian company has decided to target several regions of China, the company should work with different distributors in the targeted regions. A successful distributor in a region usually has well established connections with the local authorities. (See **Appendix F** for a list of selected Chinese distributors/dealers.)

Hong Kong based importers are another channel for importing goods into China. They are a popular choice for exporters because they know the Chinese market well (especially coastal areas like Guangzhou and Shanghai), and are well-connected. When the Chinese market first experimented with the open-door policy in the early 1980s, Hong Kong was one of the very few channels opened for foreign goods to enter the mainland market.

Agents and Sales Representatives

Agents are becoming increasingly involved in the Chinese building products market. Given China's size and diversity, as with distributors, agents do not operate on a national basis; therefore, exporters will need to hire several agents to cover different geographic regions. At least five major regions in China manage agent and distributor networks. The regions are the South (Guangzhou), the East (Shanghai), the Beijing-Tianjin region, Central China and Northeast China.

Alternatively, exporters may consider registering a representative office in China to develop their own agent network and promote their own products from within the market. Representative offices are relatively easy to set up, but are legally limited to "liaison" activities. They cannot sign sales contracts, directly bill customers, or supply parts and after-sale services to customers. The benefits of having a representative office are numerous. Companies can get quick access to business leads; make useful and solid business contacts; work closely with local distributors; expand into other regions quickly once the market matures; and react quickly to changes in market trends. All are vital to a company's success in the Chinese market.

The Canadian Embassy, Consulates General and Consulate located in China regularly receive information on new up-coming projects. Many of these opportunities are time sensitive and Canadian companies that already have a presence in the market have a distinct advantage. Therefore, it is highly recommended that Canadian companies establish a presence by having a representative office or an agent in China.

Canadian companies are advised to contact the Canadian Embassy in Beijing, the Consulate Generals in Shanghai and Guangzhou and the Consulate in Chongqing for a list of reliable and authorized building products distributors and agents in their respective regions.

Joint Ventures & Local Manufacturing

While "direct export" is often what most Canadian companies opt to do, for most building materials, manufacturing locally, with the help of a local partner, will prove to be more cost-effective in the long run. In addition, most companies find that an established presence in the Chinese market is required to effectively pursue business opportunities and/or oversee ongoing project interests.

The establishment of joint-venture relationships has much to offer Canadian manufacturers and service providers. Business in China is still primarily culturally driven, and good personal relations that can be established through joint ventures are vital for success. The Chinese partner can further establish valuable connections with government and local officials.

The products of foreign-Chinese joint ventures are generally sought by Chinese customers due to their perceived quality over domestic products and convenience of order and delivery. Thus, as with certain other industry sectors, Chinese officials are actively promoting joint ventures to attract foreign investment and technology transfers in order to increase the quality of the domestically produced building materials. For example, to upgrade the building material industry and turn it into one of Shanghai's pillar industries, the Shanghai municipal government has been strongly encouraging technology transfers and joint ventures or wholly owned projects in this sector. Canadian manufacturers should consider these policies as they develop strategies to obtain wider and sustainable market share in China. The Shanghai Building Materials Industry Bureau has comprehensive knowledge of the current business environment, and will recommend factories that they feel represent the best potential for successful joint ventures.

For providers of construction services, the Chinese are especially interested in what the MoC calls "technology exchange," where the joint-venture partners share their expertise with each other. The technological exchange is, however, typically a one-way street with the Canadian company providing advanced engineering techniques. While the Chinese partner may not provide technological assistance, it is nevertheless

indispensable in helping the joint venture to win contracts, and to sort through Chinese building codes, regulations and myriad government requirements.

Joint ventures require patience and adequate financing. The most important step is to find a good local partner who is well connected in the industry. The main advantage of working with a joint venture is that local management is able to continually gauge and adjust to market demand. Joint ventures, which bring advanced technology, first-rate managerial experience, manufacturing expertise and training programs, are welcomed by local governments. They have the reputation of producing the same quality as imported products, but at a price comparable to domestically produced products. They also do not suffer from delayed delivery like imported products, and provide the flexibility to adapt to loacal market tastes and needs.

An increasing number of wholly foreign owned enterprises (WFOE) are being established in China, as regulations restricting WFOEs continue to relax and as foreign companies want to exert full control over their businesses. The percentage of WFOEs in China has increased from 30% in 1992, to close to 60% in 1998. Although they tend to be less welcomed in under-developed parts of China, in developed coastal cities such as Shanghai, WFOEs are becoming increasingly welcome, even by the authorities.

Market-entry Considerations

Suggested Business Practices

Export opportunities for Canadian builders and building product manufacturers abound in China, but exporting to this country must be tempered with a great deal of patience and persistence. Canadian companies must realize that the Chinese market is a challenging one to enter, and must acquaint themselves with local business practices and import or joint-venture regulations. Companies must have the resources to enter the market, and should not underestimate the amount of market research, flexibility, and human and financial resources needed. Canadian companies should join delegations visiting China, and should take advantage of government contacts. Visits to China are very important in becoming familiar with the market. A specific market segment must be targeted, since China is not a homogenous market. Market data tend to be non-existent or unreliable.

Canadian companies are also advised to participate in high-profile projects in order to gain exposure in the market and to build the company's reputation. Provincial markets could also prove to be more manageable for Canadian companies that are seeking to develop a local market from which to expand in China. Reputation and reliability are extremely important in the Chinese market.

Moreover, since local Chinese architects are often unaware of how to use foreign materials, Canadian service providers should target design institutes to familiarize market players with their products. Advertising and promotion of products with local industry associations, project architects, dealers and distributors will increase awareness of foreign products. Networking with other Canadian companies with complementary products and services may allow for more successful, co-ordinated approaches to marketing in China.

Marketing and Promotional Strategies

Success of a foreign product in the Chinese market requires serious marketing efforts. Competition is fierce, and Chinese consumers feel comfortable with a brand they can recognize. For brand new products entering the market, advertising alone is sometimes not enough.

Canadian companies should be aware that product demonstrations and training are extremely important in China, since architects and designers lack familiarity with new products. The fact that construction workers are not highly skilled should also be taken into consideration — products that are easy to install will be more successful. Canadian manufacturers must be prepared to give technical seminars to help the Chinese buyers better understand their products, applications and how their products differ from those of domestic and foreign competitors. This will ensure greater purchase satisfaction, and will help potential customers to overcome their fear of using the products incorrectly. Emphasis should also be put on the justifications — if needed — for higher prices. Distinctive characteristics, after-sale service, training, superior quality, and long-term savings of products should be promoted.

Traditional ways of advertising such as TV, radio, or newspaper ads are very expensive, but they provide the most exposure to consumers. Alternatively, there are now some interior home finishing magazines in circulation, which target a more specific group of readers or potential consumers. Articles that are educational and factual about new products are effective as an advertising tool.

Finally, it is strongly suggested that Canadian companies attend regional or national building products or construction trade shows. Exhibitions and trade shows are excellent ways to obtain exposure, and to study competition in the market.

Canada Wood Bureau

Another option for Canadian wood product manufacturers to market their building products in China is with the help of the *Canada Wood Bureau*, which opened an office in Shanghai in January 2000. The organization represents Canadian companies belonging to the two largest wood associations in Canada – BC Wood Specialties Group and QWEB (Quebec Wood Export Bureau). The Canada Wood Bureau in

Shanghai is actively tracking local Chinese buyers for Canadian products. They are also currently in the process of setting up a display showroom for Canadian products. The two associations welcome new members.

Good Practices

Canadian companies should keep in mind that any investment in China requires lengthy and detailed negotiations, and usually includes substantial requirements for technology transfer. According to one Canadian building product and service company active in China, "a financial and management commitment of at least three years is required in China to get a project off the ground. If a potential foreign investor does not have that level of commitment, it is unlikely that they will succeed"[10] Canadian firms should therefore study all aspects of a prospective investment carefully, and commit resources with caution and a clear understanding of Chinese investment policy and law.

Foreign-Trade Zones/Free Ports

China's principal duty-free import/export zones are located in Dalian, Tianjin, Shanghai, Guangzhou and Hainan. In addition to these officially designated zones, many other free trade zones offering similar privileges exist and are incorporated into SEZs and open cities throughout China. However, restrictions and charges often apply and can affect venture operations and business in the latter zones.

Anticompetitive Practices

Anticompetitive practices in China come in the form of industrial conglomerates created to improve the profitability of state-owned enterprises. In some cases, the government has provided subsidies and other public benefits to such conglomerates. Some are even authorized to fix prices, allocate contracts and, in other ways, restrict competition among domestic suppliers. Such monopolistic or monopsonisitic practices may restrict market access for imported products, raise production costs, and restrict market opportunities for foreign-invested enterprises in China.

Business and Social Customs

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[10] Adrian Kuypers from Innovative Board Technologies Inc. (IBT), based in Cambridge, Ontario. IBT has been successful in selling construction products and services in China. IBT has established several plants and has developed several joint ventures with local Chinese firms in Shanghai, Fujian Province and Guangxi Province to produce medium-density fibreboard, particle board and moulded decorative door panels for use in the construction industry. The company also offers project development services, market feasibility and strategy studies, business plan development, project financing, engineering and construction services, operational management, product marketing and distribution and training. Source: http://www.ccbc.com/c_success.html .

Companies planning to do business in China need to be aware of the peculiarities of the Chinese market before plunging in. Cultural sensitivity is a must; differences do exist between Western and Chinese business practices.

In China, personal relationships in business are critical. The Chinese like to deal with "old friends," and it is important for exporters and investors to establish and maintain close relationships (in China, this relationship is referred to as cultivating your "*guanxi*") with their Chinese counterparts and relevant Chinese government agencies. It is equally important that Canadian exporters encourage strong personal relationships between their Chinese agents or distributors and the buyers and end users of the products in China. A network of strong personal relationships will help to ensure the smooth development of business in China.

For more exhaustive treatments of suggested business practices in China please refer to **Appendix H** and to the Department of Foreign Affairs and International Trade's *SME Survival Guide to the China Market*, which is available at the following URL: http://www.infoexport.gc.ca/docs/view-e.asp?fn=76520&lg=0

China's Accession to the World Trade Organization

China has made a number of trade-related commitments to WTO members that are expected to take effect when China accedes to the organization. These include tariff concessions as well as commitments to apply WTO rules relating to subsidies, standards, intellectual property, import licensing, trade-related investment measures and sanitary and phytosanitary measures. China will also be bound by fundamental WTO principles that will require the country to strengthen commercial legal procedures and improve transparency.

China's WTO commitments should help to reduce the risk of doing business in China and encourage increased trade and investment flows. However, most commitments will be phased in over time. In the case of lower tariff rates, most new bound rates will be phased in over five equal, annual increments from the date of accession.

China negotiated a number of tariff rate concessions in its bilateral WTO agreements with member countries. The most favourable concession for any item will apply to all member countries once China joins the WTO.

On November 26, 1999, Canada and China concluded a bilateral agreement providing for improved market access for a range of goods and services.

China's accession to the WTO will, beyond any doubt, improve China's investment environment and make the country's construction market fully open to the outside world. China's accession into the WTO is expected to cause an infusion of foreign investment into China's real estate market. High demand and profit potential in China's

housing market make the industry a key investment target for foreign financial institutions, who will offer real estate developers financial services ranging from feasibility studies to consulting.

Moreover, China's current tariff rates for many building materials attempt to "encourage" local production over exports. However, it is expected that competition for all products in the construction and interiors sectors will heat up over the long term when existing barriers have dropped more dramatically. The entry to the WTO will therefore improve Canadian companies' ability to compete in the market.

On the services side, China's entry into the WTO will prove beneficial to professional service providers such as engineering consultants, by providing improved (or less restrictive) access.

Import Regulations

China's import procedures are considered to be quite complicated. Only authorized import and export companies have the right to import goods. Thus, in order to export to China, Canadian companies have to use these firms. Though most building materials do not require import licenses, all imports still need to have prior approval from the Ministry of Foreign Trade and Economic Cooperation.

Customs and Tariffs

High tariffs on imports represent one of the principal impediments to Canadian exports. Canadian building product producers are particularly vulnerable if their products compete against domestically produced goods.

China's import tariffs on building materials are relatively high, ranging from 3% to 60% depending on the products type (See **Appendix G** for a list of import tariffs on selected building products). The average is closer to 25%. In addition to tariffs, imports may also be subject to value-added tax (VAT), which is usually 13% or 17%, and other taxes. It should be noted that once China enters the WTO, duties are expected to be reduced to about 10% or less, over a period of three to five years. Information on import tariffs and taxes can be obtained from "*Customs Import and Export Tariff of the People's Republic of China*", published by the Department of Laws and Regulations of the Customs General Administration of China.

Canadian companies should be aware that taxation matters in China tend to be inconsistently applied and are constantly changing, creating a lack of uniformity in customs valuation practices. Different ports of entry may charge significantly different duty rates on the same products. Because there is flexibility at the local level in deciding whether to charge the official rate, actual customs duties, like many taxes, are often the result of personal negotiation between business persons and Chinese Customs

officers. For further information about taxation, Canadian firms should seek advice from accounting offices in Canada or China. A list of firms in China can be obtained through the Canadian Embassy in Beijing.

The most important issue to be considered by any Canadian firm contemplating doing business in China is that the market is still highly protected. Investment barriers include difficulty in appealing rulings via a judicial review process, difficulty in accessing foreign exchange, the lack of transparency in the Chinese regime, and the lack of uniform application of laws and regulations throughout China. Non-tariff barriers include difficulties in obtaining import licences, the existence of quotas, and the subsidization of Chinese manufacturers. The levels of specific non-tariff barriers are the result of complex negotiations between the Central government and various ministries, state-owned corporations and trading companies.

The approval process is also challenging, as it is often difficult to identify the ultimate decision-making authority for a particular project or product. Laws governing the industry are unclear, and the regulatory environment is constantly changing.

Import Procedures

Dealing with Chinese customs can be difficult at times. Doing business over the phone or by fax is still not sufficient in China. Many import procedures require personal, face-to-face communication. Hong Kong agents or distributors can save firms a great deal of time, money and worry by handling tedious import procedures for Canadian firms, as Hong Kong firms often have a better understanding of the Chinese system.

All building product imports must be inspected by a commodity inspection company authorized by China's Import and Export Commodity Inspection Bureau. Canadian exporters are encouraged to contact the importers in China and the Trade Commissioner Service in China to check on the status of these Chinese regulations before making any shipments.

Although the Chinese architectural market offers great potential for Canadian firms, entrance is highly regulated by the Central government and the MoC. Foreign architectural firms wanting to enter or expand into the Chinese architectural market must receive approval, for the plans of any structure, from a local Architecture Design Institute (ADI). Canadian companies are, again, strongly encouraged to find a partner, as many Chinese ADIs will only consider plans developed by foreign architecture firms that have a Chinese partner. A minimum of $50,000 (300,000 yuan) in registered capital is needed for foreign private firms working solely in architectural design. In addition, ample insurance coverage must be provided to compensate for the possible risks associated with design work.

Local Standards, Certificates or Registrations

A general lack of consistent construction standards and regulations has created significant problems throughout China. The under-regulated private sector suffers from almost as great a problem in standardizing as its state-owned counterpart. Building code designs, standards, regulations, safety regulations, and quality control all remain questionable, and dangerous buildings are being constructed every day. This knowledge gap has serious implications for the development of the construction sector. For building materials that are new to China, the implications are even more serious, and a full-scale education and training program will be needed to bring public bodies, builders, architects, developers and importers up to speed on the structural applications for various building products.

Building Codes

Building codes in China are established by the Ministry of Construction; however, they are enforced by the local jurisdiction, whether county, city or province. Chinese building codes are complex, and product standards are considered inappropriate.

Energy-efficient Building Codes

Article 37 of the 1998 Chinese Law on Energy Conservation directs all building design and construction, in accordance with relevant laws and regulations, to employ energy-saving types of construction structures, materials, facilities and products. It also seeks to improve heat and insulation properties; and reduce energy consumption for space heating, cooling and lighting.

It should be noted that in Shanghai, the Municipal Construction Commission is now developing detailed regulations and new building codes to implement the replacement of old materials with more environmentally friendly and energy-efficient ones. For example, they are looking to meet Japanese, German and Austrian standards, which use plastic doors and windows — which are more energy-efficient, airtight, watertight and sound insulating, and less corrosive than steel ones. Aside from Beijing, other Chinese regions are not as progressive in this area.

National Code for the Seismic Design of Buildings

About 600 earthquakes measuring magnitude 6 or above have been recorded in China during the last century, killing at least 550 000 people. This is more than half the total of quake casualties in the world during the period. China's construction industry is therefore placing an increasing emphasis on earthquake-resistant buildings and structures.

China's National Code for the Seismic Design of Buildings (GBJ11-89), effective since 1989, requires that buildings should not be damaged by minor tremors, should be repairable after medium ones, and should not crumble because of major ones. In Beijing, permanent buildings and structures are required to withstand tremors up to magnitude 8.

Canadian companies are advised to apply for approval from local construction authorities to start a high-rise construction project, and ask the ministry-approved committee of seismic experts to examine designs and evaluate the overall anti-quake capacities.

Standards

There are three types of technical standards for building products:

- national (guojia biaozhun);
- provincial (gongbu biaozhun); and
- enterprise (qiye biaozhun).

The SABMI in China sets the national standards for most building products and technologies.

Product specification is extremely important, and Canadian companies should obtain product specifications from these organizations before submitting their products for inspection. The MoC and the SABMI regularly publish a list of new products approved for usage in Chinese construction projects. Canadian companies should also be familiar with China's regulations, particularly as they pertain to the construction and architecture sector.

Although there are currently no standards for new or "high-technology" construction products such as double-glazed windows and fire-resistant doors, the MoC's related drafts and revisions should be regularly reviewed, as changes are made frequently.

For example, Canadian companies should note that the use of certain construction materials in China has recently been prohibited. According to information released by the MoC, a notice was issued jointly by the SETC, the MoC, the State Bureau of Technology Monitoring and the State Bureau of Building Materials regarding use of outdated products in construction work. The notice prohibits the use not only of low-quality construction materials and products, but also of those not in compliance with energy-saving and environmental protection requirements. As of June 1, 2000, restrictions were placed on log windows, doors and floors in new urban housing construction projects in order to protect forest resources, prevent erosion, and conserve water. Restrictions have also been placed on the following:

- cast iron drainpipes used indoors; instead, hard polyvinyl chloride (PVC) drainpipes and cast iron drainpipes with flexible joints must be used (effective January 1, 2000);
- solid clay bricks for housing construction in the four major municipalities, medium and large cities in coastal areas as well as provincial medium and large cities with arable land of less than 0.8 mu (0.13 acre, or 0.05 hectare) per capita (effective June 1, 2000);
- rare woods from the natural forest protection areas along the Yangtze and Yellow rivers for the production of doors, windows and floors (effective June 1, 2000);
- the installation of toilets with a one-time water flush capacity exceeding 9 litres in new urban housing will be banned; toilets with a flush capacity of 6 litres are encouraged (beginning December 1, 2000); and
- cold-rolled zinc-plated steel pipes as indoor water supply pipes and the use of hot-rolled zinc-plated steel pipes — during the construction of new houses in cities and towns (effective June 1, 2000).

The prohibition of these products will be phased in gradually for certain cities. The products are being prohibited for environmental or energy-conservation reasons.

Compatibility

Compatibility should be addressed as a major issue in this market, as imported building components are not always fully compatible with the appliances and systems that customers have already installed. For example, Chinese kitchens are very small compared to Canadian standards — about 10 m^2 — and therefore require smaller cabinets. Counters should be four inches lower. Chinese kitchens require more grease-resistant features due to the Chinese cooking style. Bathtubs are two thirds the size of standard Canadian tub. Many Chinese companies have asked for additional accessories to be included to help them fit the product better. Some end users only buy parts of a Canadian product and try to combine it with domestic products in an attempt to cut costs. Canadians companies are therefore encouraged to visit China to determine if their products are compatible with Chinese standards or to determine how the Chinese will use their product.

Export Credit Risks, Restrictions on Letters of Credit or Currency Controls

Import payment practices are, for the most part, the same in China as in most other countries. Regardless of the source of financing, there are two common payment mechanisms: Letter of Credit and Documents Against Payment.

Letter of Credit — Although the Bank of China dominates China's trade and finance business, several other Chinese banks have the authority to issue letters of credit for Chinese imports. These other major Chinese banks are the People's Construction Bank

of China, the Industrial and Commercial Bank of China, the Agricultural Bank of China, and the CITIC Industrial Bank. Foreign banks with branch offices or representative offices in China can also issue letters of credit.

Documents Against Payment — This method of payment is similar to a letter of credit, but less formal and more flexible. As with a letter of credit, the exporter submits a full set of trade documents for payment collection to the bank designated in the contract. The Chinese bank sends the documents to the home office, which examines them and, in some cases, passes them to the buyer for further examination. Payment is made after the documents have met the approval of all parties. This method of payment provides rather thin coverage against default. It can be considerably less expensive than a letter of credit, but should be used with some degree of caution.

Foreign companies doing business in China have found that both public- and private-sector customers are usually diligent with issuing payment on time and according to the specifications of the agreement. Short-term credits (30 to 90 days) are commonly provided.

All commercial transactions involving foreign exchange payments in China must be approved by the State Administration of Foreign Exchange.

PROMOTIONAL EVENTS

International exhibitions held in China are good opportunities for Canadian companies to market products and to find agents and distributors. Chinese business people seldom travel abroad and frequently depend on these exhibitions to find companies interested in exporting to China.

Event / Description	Organizer
WoodMac China 2001 February 20-23, 2001 (Annual) Intex Convention Centre & Shanghaimart, Shanghai This well-established show provides a good forum for forestry products and woodworking machinery and supplies. It also showcases equipment and supplies for timber construction and furniture production. This should be a good opportunity for companies looking to export wood products to China.	Hong Kong Exhibition Services Ltd. 9th Floor Shiu Lam Building, 23 Luard Rd., Wanchai, Hong Kong Tel.: (852) 2804-1500 Fax: (852) 2528-3103 Contact: Nancy Yung, E-mail: nancy@hkesmontnet.com.hk
WoodBuild China 2001 February 20-23, 2001 (Annual) Intex Convention Centre & Shanghaimart, Shanghai The 2nd International Exhibition of Machinery and Supplies for Timber Construction	(same as above)
China Building 2000 November 28 - December 1, 2000 (Annual) China International Exhibition Centre Beijing, China International Exhibition on Building Materials, Building Services & Interior Design	SABMI Head Office Building, Beijing 100831, China Tel.: (86-10) -6803-7227, 6804-1566, 6804-1567 Fax: (86-10) -6834-6980, 6803-7220 Contact: Bai Xiaogang, Director of Exhibition Dept. E-mail: mailto:ccpitbms@public3.bta.net.cn Web: http://www.chinabuilding.net
China International Building Systems Equipment & Service Exhibition Dec 2-5, 2000 Shanghai International Exhibition Centre Shanghai, China Building design, intelligent building, garage, escalator equipment and building design technology	Beijing Yuanda Group Company, Shanghai Qilong Exhibition Service Co. Ltd. Contact: Lu Hong Zhong Gang Tel.: (86-10) 6420-0941, 6420-1199 Fax: (86-10) 6420-0941, 6420-0955
The 4th China International Exhibition of Modern Building Equipment November 1-30, 2000 (Annual) China-Beijing China International Exhibition Centre	Kelong Expo Corporation Tel.: 010-65906108

Event / Description	Organizer
Building South China March 2001 (Annual) China Foreign Trade Centre Guangzhou, China South China International Exhibition on Building Materials, Building Services and Interior Decoration China Foreign Trade Centre	Adsale Exhibition Services Ltd. 4/F Stanhope House 734 King's Rd. North Point, Hong Kong Tel.: (852) 2811-8897 Fax: (852) 2516-5024
BATIMAT China 2001 **Kitchen & Bath China 2001** **Hardware China 2001** **ILE China 2001** **Tile & Stone China 2001** April 27, 2001 (Annual) Shanghai Everbright Convention & Exhibition Centre Intex Shanghai	Shanghai MF Sinoexpo International Exhibition Co., Ltd 10/Fl, Xian Dai Mansion 218 Xiangyang Road (S) Shanghai 200031, China Tel: (86-21) 6437-1178 Fax: (86-21) 6437-0982 Contact: Annie Shi
Building Shanghai 2001 – Shanghai November 6-9, 2001 (Annual) Intex Shanghai International Exhibition on Building Materials, Building Services and Interior Decoration	Adsale Exhibition Services Ltd. Tel.: (852) 2811-8897 Fax: (852) 2516-5024 E-mail: info@adsaleexh.com
CTC-Construction Technology China 2001 **Building Shanghai 2001 – Shanghai** November 6-9, 2001 (Annual) Intex Shanghai The 8th International Exhibition on Construction Equipment and Building Materials Machinery	same as above
2000 China International Exhibition on Intelligent Building November 29 and December 2, 2000 Shanghai International Exhibition Centre The latest technologies, equipment and products concerning intelligent building, involving complex line-laying, automatic control, public security, fire protection, telecommunications, computer network and electrical appliances.	Shanghai Keylong Exhibition Service Co. Ltd. E19B, Strength Plaza, New Hongqiao, Business Square, No.600 Tianshan Rd., Shanghai 200051 Contact: Wang Jian Tel.: 021-5289-6776 Fax: 021-5289-96648 ext. 26 E-mail: keylong@public.sa.net.cn

KEY CONTACTS AND SUPPORT SERVICES

Canadian Government Contacts

Canadian Embassy and Consulates

Canadian Embassy – Beijing
19 Dongzhimenwai Dajie
Chaoyang District
Beijing 100600 China
Tel: (86-10) 6532-3536
Fax: (86-10) 6532-4072
Contact: Ms. Terry Brophy, Commercial Counsellor
E-mail: terry.brophy@dfait-maeci.gc.ca
Internet: http://www.canada.org.cn

Canadian Consulate – Chongqing
Suite 1705, Metropolitan Tower
Wu Yi Lu, Yu Zhong District
Chongqing 400010 China
Tel.: (86-23) 6373-8007
Fax: (86-23) 6373-8026
Contact: Ms. Aice Xiong
E-mail: aice.xiong@dfait-maeci.gc.ca
Internet: http://www.canada.org.cn

Consulate General of Canada – Guangzhou
Suite 801, China Hotel Office Tower
Liu Hua Lu
Guangzhou 510015 China
Tel.: (86-20) 8666-0569
Fax: (86-20) 8667-2401
Contact: Ms. Sarah Wu, Commercial Officer
E-mail: sarah.wu@dfait-maeci.gc.ca
Internet: www.canada.org.cn

Consulate General of Canada – Shanghai
Tower 4, Suite 604
Shanghai Centre
1376 Nanjing Xi Lu
Shanghai 200040 China
Tel: (86-21) 6279-8400
Fax: (86-21) 6279-8401
Contact: Etienne Sum Wah
E-mail: etienne.sum-wah@dfait-maeci.gc.ca
Internet: www.canada.org.cn

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125 Sussex Dr.
Ottawa, ON K1A 0G2
Internet: http://www.dfait-maeci.gc.ca

China and Mongolia Division (PCM)
Tel.: (613) 996-7256
Fax: (613) 943-1068
Contact: Gregory Chin, Desk Officer
E-mail: gregory.chin@dfait-maeci.gc.ca

Market Support Division (TCM)
Tel: (613) 996-0684
Fax: (613) 943-1103
Contact: Clem Srour, Trade Commissioner, Resource Industries
E-mail: Clem.srour@dfait-maeci.gc.ca

Canada Commercial Corporation (CCC)

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Shanghai 200031 China
Tel.: (86-21) 6431-3913
Technical journal. Covers residential planning, design, maintenance, management, planning, social-economic behaviour, etc.

Shanghai Tianyi Jiancai Zhuangshi Shangqingwang
(Tian Yi building material and decoration network)
Shanghai Tian Yi Image Planning Co. Ltd.
Room 406-408, Zhi Yuan Building, 401 Zhiyuan
Shanghai 200071 China
Tel.: (86-21) 5670-2319
Fax: (86-21) 5663-6452
Contact: Guo Chunying, General Manager
E-mail: mailto:tyxx@public.sta.net.cn
Internet:
http://www.sh.com/built/chbuild/chbuild.htm

Shanghai Jianzhu Zhaotoubia Xinxi (Shanghai Construction Project
(Invitation and bid submission tender information, published biweekly)
1407 Xizang Rd.
Shanghai 200011 China
Tel.: (86-21) 6312-2491, 6312-1800 Ext. 3111
Fax: (86-21) 6312-3661
Internet: http://www.construction.online.sg.sh.cn

Shanghai Huaxue Jiancai Shichang Xinxi
(Shanghai chemical building material market information, published biweekly)
75 Wanping Rd.
Shanghai 200032 China
Tel.: (86-21) 6439-0809 Ext. 343
Fax: (86-21) 6464-0714, 6468-9193

World Architecture (published quarterly)
Construction Engineering Department
Quinghua University
Beijing 100084 China
Tel.: (86-10) 6259-5799
Technical journal. Covers new overseas architectural ideas, designs, technologies, building materials etc.

Zhongguo Jianshe Bao (China building materials paper, published four times per week)
Ministry of Construction
Baiwanzhuang, Haidian District
Beijing 100831 China
Tel.: 8610-6831-1144
Fax: 8610-6839-4537

Zhongguo Jiancai
(China building materials paper)
Ministry of Construction, Baiwanzhuang
Beijing 100835 China
Tel.: (86-10) 6831-1144 ext. 3705 or 3710
Fax: (86-10) 6831-1497
Contact: Wang Shoumin, Editor in Chief

Guides and Reference Books

A Guide to Building Materials and Equipment Annual
Publisher: Pace Publishing Company Limited
Block B, Room 607-608 Mingbao
Industrial Centre
18 Jiaye St.
Chaiwan, Hong Kong
Tel.: (852) 2897-1688
Fax: (852) 2897-2888

Hong Kong Builder Directory China Edition
(Annual)
Publisher: Far East Trade Press Limited
Floor 10, Block C, Haijing Building
2-8 Watson Rd., North Point
Hong Kong
Tel.: (852) 2566-8381
Fax: (852) 2508-0603
Contact: Kenneth Ho, Publisher;
This reference book is full of building materials and distributors' advertisements. It also contains lists of Hong Kong architects and Chinese construction companies and design bureaux.

Useful Internet Sites

About China: **http://www.china.org.cn/English**

Asia Pacific Foundation: **http://www.apfnet.org**

Business Development Bank of Canada: **http://www.bdc.ca**

Canadian Government in China: **http://www.canada.org.cn/**

China and WTO: **http://www.chinacanada.com/NL-Nov-99.htm**

China Council for the Promotion of International Trade (CCPIT): **http://www.ccpit.org** (information on regulations, tariffs, business environment and much more)

China Daily: **http://www.chinadaily.com**

China Economy: **http://chinaeco.com/index.htm**

China Intelligent Building Service Network: **http://www.chnibs.com/english**

Chinamarket: **http://www.chinamarket.com.cn** (posts bidding notices/pre-notices and company information)

ChinaMet: **http://www.ChinaMet.com/** (legal and policy info, tender and bidding opportunities)

ChinaPages - China Business Information Resources: **http://www.chinapages.com**

China Perspectives: **http://www.dfait-maeci.gc.ca/china**

ChinaSite: **http://chinasite.com** (comprehensive Chinese Internet portal with links to a wide variety of business sectors)

China Today: **http://www.chinatoday.com**

China Trading: **http://www.chinatrading.com**

China – Window: Home Page: **http://china-window.com/window.html**

Construction online (China-Hong Kong): **http://www.proweb.com.hk**

Indepth information about China's law and legal systems: **http://www.qis.net/chinalaw**

InfoExport: **http://www.infoexport.gc.ca**

List of Chinese Construction Companies: **http://www.sh.com/chbuild/namelist.htm**

Ministry of Construction in China: **http://www.cin.gov.cn**

SinoProjects: **http://www.sinoprojects.com/english/index.htm**

Sinosource–Business Directory of China: **http://www.sinosource.com**

South China Morning Post: **http://www.scmp.com/news**

Appendix A. Total Output Value of Construction by Region, 1994-1998 ($ billions)

Region	1994	1995	1996	1997	1998
China	*74.03*	*95.19*	*135.83*	*152.41*	*180.31*
Beijing	4.80	6.09	7.68	8.67	11.16
Tianjin	1.97	2.60	2.76	3.19	3.78
Hebei	3.40	4.29	5.52	6.28	7.05
Shanxi	2.11	2.41	2.57	3.21	3.90
Inner Mongolia	1.27	1.36	1.44	1.61	1.82
Liaoning	6.13	6.69	6.52	7.17	7.51
Jilin	1.85	2.10	2.23	2.29	2.62
Heilongjiang	2.87	3.38	3.66	4.07	4.91
Shanghai	4.93	6.43	7.23	9.23	10.50
Jiangsu	5.74	8.83	16.63	17.90	21.44
Zhejiang	3.52	5.81	13.71	14.65	16.69
Anhui	1.82	2.30	3.94	3.94	4.22
Fujian	2.08	2.73	3.42	3.79	4.38
Jiangxi	1.07	1.25	1.60	1.43	1.60
Shandong	3.28	4.24	9.48	10.82	12.55
Henan	2.32	2.99	4.45	4.92	5.46
Hubei	2.69	3.74	4.66	5.11	6.16
Hunan	1.84	2.44	4.57	4.95	5.87
Guangdong	7.78	10.45	10.23	11.27	14.13
Guangxi	1.35	1.53	2.02	2.13	2.41
Hainan	0.35	0.29	0.25	0.47	0.55
Chongqing	0.00	0.00	0.00	4.08	5.19
Sichuan	4.59	5.89	11.01	8.69	10.71
Guizhou	0.77	0.89	1.08	1.28	1.49
Yunnan	1.34	1.56	2.84	3.66	4.51
Tibet	0.04	0.06	0.11	0.13	0.17
Shaanxi	1.56	1.75	2.12	2.74	3.37
Gansu	0.82	1.00	1.70	1.76	2.03
Qinghai	0.26	0.34	0.46	0.52	0.64
Ningxia	0.30	0.33	0.42	0.56	0.71
Xinjiang	1.18	1.44	1.52	1.91	2.57

Source: China Statistical Informaiton Network, http://www.stats.gov.cn/yearbook/1999

Appendix B. Profiles of Provinces and Regions in China, 1998

Provinces and Regions	Land Area (10 000 sq km)	Population (million persons)	Total Number of Households	Per-Capita Income (Urban) ($)	Per-Capita Income (Rural) ($)
China	***960***	***1248***	***3 411 190***	***978.13***	***387.43***
Ningxia Autonomous Region	5	5	1 312	743.03	308.43
Shaanxi	21	36	9 287	760.48	251.88
Shanxi	16	32	8 735	737.91	333.06
Beijing	2	12	4 002	1526.89	708.26
Inner Mongolia	118	23	6 759	786.59	355.08
Jilin	19	26	7 796	756.92	427.14
Heilongjiang	45	38	11 124	769.08	403.76
Tianjin	1	10	2 868	1277.02	608.51
Liaoning	15	42	12 824	832.64	462.30
Hebei	19	66	18 197	916.81	431.03
Shandong	16	88	27 327	970.22	439.55
Henan	17	93	24 313	759.54	334.04
Jiangsu	10	72	21 087	1086.75	605.12
Anhui	14	62	17 043	859.94	333.86
Shanghai	1	15	4 785	1581.49	968.91
Zhejiang	10	45	14 095	1412.77	683.57
Fujian	12	33	8 867	1172.83	527.99
Jiangxi	17	42	10 956	765.96	367.00
Hubei	19	59	16 438	869.02	389.27
Guangdong	18	71	16 899	1595.75	632.06
Hainan	3	8	1 660	877.25	361.68
Hunan	21	65	24 313	981.04	370.02
Guangxi	24	47	11 221	974.95	353.36
Guizhou	18	37	8 863	820.82	239.14
Chongqing	49	85	9 214	983.36	308.31
Yunnan	39	41	10 511	1093.17	248.60
Sichuan	8	31	24 572	924.67	320.62
Qinghai	72	5	1 166	762.94	255.32
Tibet	123	3	480	0.00	220.68
Xinjiang	165	17	4 267	903.47	286.75
Gansu	45	25	6 131	722.94	249.63

Source: www.StatChina.com, 2000.

Appendix C. Selected Manufacturers of Building Products in China

Paints:

Xiamen Lianxing Chemical Industrial Co. Ltd.
Shunde Baisefu Paint Co. Ltd., Guangdong
Fuzhou Fuchuan Chemical Co. Ltd.
Shanghai Feihu Construction Paint Co. Ltd.
Shanghai Huili Building Materials Co. Ltd. Chemical Building Materials General Factory
Shanghai Huasheng Chemical Co. Ltd. Shanghai Huasheng Chemical Factory

Wallpapers:

Beijing No. 4 Chemical Factory
Shanghai No. 1 Plastic Factory
Shanghai Shuguang Furniture Plastic Factory
Shanghai Jiefang Plastic Products Factory
Yichang No. 10 Plastic Factory
Zhengzhou No. 3 Plastic Factory
Pingdingshan Municipal Resin Factory
Tianjin Saili Plastic Products Co. Ltd.
Deyin Interior Design Materials Co. Ltd., Tianjin (Joint Venture)
Xinzhou New Type of Building Materials Factory
Shijiazhuang Xinzhong Interior Design Materials Co. Ltd.
Hebei Boya Light Industry & Textile Industry Company
Fulida Interior Design Materials Co. Ltd., Hebei Province
Anshu Interior Design Materials Co. Ltd., Anshan, Liaoning Province
Daqing No. 1 Plastic Factory, Helongjiang Province
China New Type of Building Materials Co. Taiing Wall Paper Factory
Ganzhou Wall Paper Factory, Ganzhou, Jiangxi Province
Fujian Fubei Interior Design Materials Co. Ltd. (Joint Venture)
Kaifeng Longfeng Plastic Co. Ltd. (Joint Venture)
Chongqing Chemical Factory

Sealants:

Beijing Danling Fine Chemical Co. Ltd.
Shanghai Hangao Chemical Products Co. Ltd.
Shanghai Petrochemical Sealant Factory
Liaoning Haicheng Municipal Construction Materials & Chemical Factory
Jiansu Fuli Chemical Group Corp.
Lianyungang Municipal Sealant Factory
Shangdong Chemical Factory
Zibo Jincheng Duoli Sealant Co. Ltd.
Hangzhou Guosen Chemical Industrial Co. Ltd.
Ganxi Chemical Factory
Jiangxi Jingwei Chemical Factory
Guangzhou Construction Materials Factory
Chengdu No. 2 Chemical Factory

Plastics:

Beijing Chemical Building Materials Factory
Beijing Yongxing Plastic Factory
Beijing No. 10 Plastic Factory
Shanghai Bolu Chemical Building Materials Co. Ltd.
Shanghai Nanfang Chemical Building Materials Co. Ltd.
Shanghai Nanhui Plastic Products Factory
Hanglu Special Plastic Co. Ltd., Xiaoshan City, Zhejiang Province
Xiamen Lulu Special Plastic Materials Co. Ltd.
Zhongshan Weili Plastic Factory
Zhengzhou Plastic Panel Factory
Xingning No. 3 Plastic Factory

Appendix D. Selected Companies/Developers

Beijing Housing Construction Equipment & Materials Company
30 Hetaoyuan, Guandongdian North St.
Chaoyang District
Beijing China
Tel.: (86-10) 6501-4178
Fax: (86-10) 6501-9654
Contact: Li Shuanzhuang, General Manager

Beijing General Corporation of Building Materials Group
2 Huaibaishu St., Xuanwu District
Beijing 100053 China
Tel.: (86-10) 6301-6814
Fax: (86-10) 6302-1148
Contact: Yao Liwei, Division Chief of Foreign Economic Department

Beijing Urban Construction Group
62 Xueyuan North Rd., Haidian District
Beijing China
Tel.: (86-10) 6225-5511 ext. 6522
Fax: (86-10) 6221-5934
Contact: Li Xu, International Co-operation Department

Beijing Rongquan Industrial & Commercial Co. Ltd.
11 Yuquan Rd.
Beijing China
Tel.: (86-10) 6815-2117
Fax: (86-10) 6815-2997
Contact: Li Jinfeng, General Manager

Shanghai Housing Corp.
246 Jiangxi Zhonglu
Shanghai 200002 China
Tel.: (86-21) 6323-5321
Fax: (86-21) 6329-1849
Contact: Qian Pei, Manager

Shanghai Construction Engineering Corp.
406 Jiangxi Zhonglu
Shanghai 200002 China
Tel.: (86-21) 6329-8630
Fax: (86-21) 6321-0500
Contact: Jiang Zhiquan, Manager

China Building Material Industry Construction Corporation
11 Beishuncheng St., Xizhimennei
Beijing China
Tel.: (86-10) 6225-4477
Fax: (86-10) 6225-3829
Contact: Xue Tongzu, General Manager

Changchun Zhongdong Group
14 Yongchang Rd., Nanguan District
Changchun
Jilin Province China
Tel.: (86-43) 1284-3619
Fax: (86-43) 1284-3620
Contact: Shi Lianfa, Chairman & General Manager

China National New Building Materials Corporation
2 Zizuyuan Nanlu
Beijing 100044 China
Tel.: (86-10) 6841-5577
Fax: (86-10) 6842-8350
Contact: Zhang Guodong, Manager of Import & Export Department

Beijing Residential Building Construction Corporation
25 Dongsanhuan Zhonglu, Chaoyang District
Beijing 100020 China
Tel.: (86-10) 6500-5533
Fax: (86-10) 6500-6028
Contact: Shao Huoding, General Manager

Shanghai Municipal Construction Corp.
654 Mengzi Rd.
Shanghai 200023 China
Tel.: (86-21) 6304-6309
Fax: (86-21) 6301-8425
Contact: Zhu Jiaxiang, Manager

Shanghai International Tendering Company
1400 F Mei Li Yuan Building
Shanghai 200040 China
Tel.: (86-21) 6279-0102 ext. 19, 6279-0520
Fax: (86-21) 6258-8203
Contacts: Jiang Zhiquan, Manager
Yang Daiwei, General Manager
Zhu Ting, Project Manager

Shanghai Jing Shen Industrial Company
21 Caoxi Rd.
Shanghai 200020 China
Tel.: (86-21) 6415-3512
Fax: (86-21) 6415-3512
Contact: Ma Chunchao, General Manager

Shanghai Municipal Civil Defence Engineering Company
1000 Panyu Rd.
Shanghai 200030 China
Tel.: (86-21) 9468-8645
Fax: (86-21) 6468-1174
Contact: Wang Jian Zhong, Chief, General Manager's Office

Beijing Construction Engineering Group Corporation
19 Nanlishi Rd.
Beijing 100045 China
Tel.: (86-10) 6851-3706
Fax: (86-10) 6853-3561
Contact: Zhang Ruqin, Division Chief, Foreign Business Office

Beijing Building Materials Supply Company
10 Xibianmen Xili, Xuanwu District
Beijing 100053 China
Tel.: (86-10) 6302-3322 ext.4415
Fax: (86-10) 6302-1172
Contact: Dong Shuqi, Vice General Manager

Shanghai Infrastructure Engineering Company
110 Yan'an Dong Rd.
Shanghai 200002 China
Tel.: (86-21) 6321-6377,6323-4241, 6329-0196
Fax: (86-21) 6323-3908
Contact: Lin Hui Xue, General Manager

Chengdu Wuhai Real Estate Co. Ltd.
66 Section 4, S. Renmin Rd., Chengdu
Sichuan China
Tel.: (86-28) 518-0188
Fax: (86-28) 515-0819
Contact: Che Yong, President

Chengdu Zhiye Housing & Real Estate Development Co. Ltd.
Beiyiduan, Erhuan Rd., Chengdu
Sichuan China
Tel.: (86-28) 764-4743, 764-5908
Fax: (86-28) 764-6511
Contact: Zhou Zhengzhi, Chairman & General Manager

Chengdu Zhongda Real Estate Co. Ltd.
5/F Building 5, Shaocheng Rd.
Shudu Dadao, Chengdu,
Sichuan 6120101 China
Tel.: (86-28) 669-8172, 669-8173
Fax: (86-28) 669-4823
Contact: Sai-Laung Lau, Director & General Manager

Sichuan Baishijia International Real Estate Corp.
80 Section 2, Renmin Rd. S.
Chengdu
Sichuan 610012 China
Tel.: (86-28) 558-2222 ext. 251, 6138666
Fax: (86-28) 558-8777
Contact: Xiong Xiaofeng, General Manager

Chengdu Yindu Development Co. Ltd.
3rd Floor, Wanke Xingye Mansion
1 Lingshiguan Rd.
Sichuan 610041 China
Tel.: (86-28) 5172562
Fax: (86-28) 5214360
Contact: Zheng Qi, Sales Department

Appendix E. Number of Construction Companies by Registered*and Region, 1998

Region	Domestic-Funded	State-owned	Collective-owned	Funded by entrepreneurs from Hong Kong, Macao and Taiwan	Foreign Funded	Solely Owned
China	44668	9458	26970	703	337	23
Beijing	1351	413	692	80	50	0
Tianjin	471	158	282	19	11	0
Hebei	1722	458	1085	4	4	1
Shanxi	822	217	494	8	1	0
Inner Mongolia	808	172	312	6	1	0
Liaoning	2299	564	1451	39	29	0
Jilin	744	359	315	7	2	0
Heilongjiang	1665	527	777	9	8	2
Shanghai	1292	290	491	123	70	0
Jiangsu	3383	559	2285	48	27	0
Zhejiang	3485	351	1583	39	19	2
Anhui	1454	239	970	6	3	0
Fujian	1562	260	937	78	24	8
Jiangxi	1062	237	780	0	1	0
Shandong	4155	714	2718	72	24	4
Henan	1987	461	1313	14	9	1
Hubei	1771	418	1167	17	7	0
Hunan	1798	315	1374	2	1	0
Guangdong	2424	651	1463	62	27	0
Guangxi	924	235	621	4	1	0
Hainan	243	155	72	3	2	1
Chongqing	1633	169	954	17	8	2
Sichuan	2972	417	2056	13	0	0
Guizhou	584	159	370	4	0	0
Yunnan	1209	156	838	7	1	0
Tibet	86	40	42	0	0	0
Shaanxi	896	173	556	2	0	0
Gansu	549	105	352	9	3	1
Qinghai	212	79	98	3	1	0
Ningxia	428	147	174	3	3	1
Xinjiang	677	260	348	5	0	0

* companies might be represented in more than one category
Source: China Statistical Information Network, http://www.stats.gov.cn/yearbook/1999.

Appendix F. Building Products Distributors/Dealers

China National Building Materials & Equipment Import/Export Corporation
Baiwanzhuang
Beijing 100831 China
Tel.: (86-10) 6830-0071
Fax: (86-10) 6831-1380
Contact: Li Baohong, Manager of Import Section

China National Timber Corporation
Import/Export Department
17-18th Floor Timber Trade Building Xizhimenbei
Beijing 100088 China
Tel.: (86-10) 6225-1425
Fax: (86-10) 6225-1195
Contact: Geng Fengying, Deputy Manager

China National Building Material Technology and Equipment Corporation
Baiwanzhuang
Beijing 100831 China
Tel.: (86-10) 6224-5477
Fax: (86-10) 6224-1797
Contact: Lian Jisan, General Manager

China Building Material Industrial Corporation for Foreign Economic & Technical Co-operation
9 Sanlihe Rd., Haiden District
Beijing 100831 China
Tel.: (86-10) 6833-5635
Fax: (86-10) 6831-3945
Contact: Sun Yuhai, General Manager

Bi-Hope International Trade (Shanghai) Ltd.
16/E Building 4, Zhujiang Garden
1097 Pudong Ave.
Shanghai 200135 China
Tel.: (86-21) 5821-9466, 5821-9337
Fax: (86-21) 5821-8313
Contact: Jennifer Dong, General Manager

Shanghai Xinping Building Material Super Market
1288 Caobao Rd.
Shanghai 200233 China
Tel.: (86-21) 6480-1898
Fax: (86-21) 6480-9243
Contact: Timothy Zhou, General Manager

ACS Company
Literature Information Centre, Room 116
319 Yueyang Rd.
Shanghai 200031 China
Tel.: (86-21) 6431-9539
Fax: (86-21) 6437-5762
Contact: George Wei, General Manager

China Building Equipment & Materials Corp.
Shanghai Branch
18/F Jingde Building, 319 Changle Rd.
Shanghai 200040 China
Tel.: (86-21) 6267-6248, 6267-6478
Fax: (86-21) 6267-6477
Contact: Wang Chen, Sale Mgr.

Shenyang Xing Guang Building Materials Group
94 Heping Beidajie, Heping District
Shenyang 110001 China
Tel.: (86-24) 2323-4722, 2323-4859, 2326-4722
Fax: (86-24) 2323-9171
Contact: Zhang Liwen, Deputy General Manager

Shenyang Chia Tai Group
Shenyang Chia Tai Land and Property Development Co. Ltd.
Rm. 1011, Golden Cup Building
57 Zhongshan Rd., Heping District
Shenyang 110001 Liaoning China
Tel.: (86-412) 2323-9499
Fax: (86-412) 2323-3779
Contact: Alan Tang, General Manager

Beijing Rongquan Building Material Supermarket
Beijing Rongquan Commercial & Trade Co. Ltd.
11 Yuquan Rd.
Beijing 100039 China
Tel.: (86-10) 6815-2117, 6815-2119
Fax: (86-10) 6815-2997
Contact: Li Jinfeng, General Manager

The Home Way (China) Inc.
1 Erjing Rd.
Tianjin Economic Development Zone
Tianjin 300300 China
Tel.: (86-22) 2499-0606 ext. 2403, 2402
Fax: (86-22) 2499-4567
E-mail: mailto:homeway@public.tpt.tj.cn
Contact: Mason Ludlow, General Manager

Prima Decoration Ltd.
Room 2307, Liangyou Building
1455 S. Suzhou Rd.
Shanghai 200041 China
Tel.: (86-21) 6253-3663 ext. 2307
Contact: Junyan Lu, Director

Shanghai Building Material Commercial City
Business Development Department
407 Yishan Rd.
Shanghai 200030 China
Tel.: (86-21) 6469-3328
Fax: (86-21) 6469-3388
Contacts: Shen Cai Hong, Manager

Shanghai Decoration Centre
3158-3188 Huyi Highway, Jiading District,
South Gate
Shanghai 201821 China
Tel.: (86-21) 5916-2486, 5916-2339, 5916-1739
Fax: (86-21) 5916-1739
Contact: Xu Cheng, General Manager

Shanghai Waterproof Building Materials Co.
407 Yishan Rd.
Shanghai 200030 China
Tel.: (86-21) 6438-7777
Fax: (86-21) 6438-3622
Contact: Chen Yun Zhou, Deputy General Manager

Shanghai Lujiazui Import & Export Co. Ltd.
4/F 1193 Dongfang Rd.
Shanghai 200122 China
Tel.: (86-21) 5876-9018
Fax: (86-21) 5879-1363
Contact: Chen Xiaomei, Vice General Manager

Shanghai Dalu Friendship Int'l Hotel Equipment and Facilities
Trading Centre, 1063 Kongjiang Rd.
Shanghai 200093 China
Tel.: (86-21) 6570-2166 ext. 618
Fax: (86-21) 6570-4035
E-mail: dalunet@public.sta.net.cn
Contact: Sheng Qiang, Manager, Marketing Service

Shanghai Building Materials Group General Corporation
Investment and Development Division
21/F Yan'an Rd.
Shanghai 200040 China
Tel.: (86-21) 6279-0520 ext. 2105
Fax: (86-21) 6279-1918
Contact: Liu Liangli, Chief

Shanghai Huili Corp., Overseas Business Dept.
100 New Rd., Zhoupu
Shanghai 201318 China
Tel.: (86-21) 5811-2877
Fax: (86-21) 5811-3449
Contact: Yao He Lang, Vice Chief

Shanghai Zhule Construction Development Company
650 Tianshan Rd.
Shanghai 200051 China
Tel.: (86-21) 6233-1918
Fax: (86-21) 6233-3320
Contact: Wang Yuan Shen, General Manager

Xinya Edifice Co. Ltd.
74, Erdao St., Tiedong District, Anshan
Liaoning 114002 China
Tel.: (86-412) 2231029
Fax: (86-412) 2225228
Contact: Yu Shencheng, Chairman & General Manager

Shanghai Lujiazui Engineering Materials Equipment Supply Co.
4/F 1193 Dongfang Rd.
Shanghai 200122 China
Tel.: (86-21) 5879-0743
Fax: (86-21) 5879-1363
Contact: Wu Xiao Rong, Vice General Manager

Shanghai Bangtai Decoration Materials Co. Ltd.
2828 Yanggao Rd. (South)
Pudong New District
Shanghai 200125 China
Tel.: (86-21) 5881-0330, 5870-0148
Fax: (86-21) 5870-0148
Contact: Bao Zhang Tai, Chairman and General Manager

Shanghai First Choice Construction Materials Market
House 10, Lane 53, Jingxian Rd.
Shanghai 200020 China
Tel.: (86-21) 6255-0840
Fax: (86-21) 6253-5703
Contact: Gu Xiao Xing, Manager, Foreign Trade Department

Appendix G. Import Tariffs on Selected Products

Tax Code	Item	1999 Duty Rate
25151100	Marble and cala-tufa in original stage or roughly processed	4
25151200	Marble and cala-tufa in rectangular shape	4
25152000	Other calcareaous stone used for tablet or building (paraffin)	4
25161100	Granite in original state or roughly processed	4
25161200	Granite in rectangular shape	4
25162100	Sandstone in original state of roughly processed	3
25169000	Other stones used for tablet or building	4
25201000	Plaster stone, firm plaster	6
39252000	Plastic windows, doors & frames & thresholds	20
39253000	Plastic window boards or window shutters & similar products & spares	20
39259000	Other building plastic products that are not included in the list	20
44081010	Veneer sheets	10
44081020	Sheets for plywood	6
44081090	Other wood sawn lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed of a thickness not exceeding 6 mm	8
44120000	Plywood, veneered panels and similar laminated wood	15
44181000	Wood windows, French windows & frames	18
44182000	Wood doors, door frames & door thresholds	18
44183000	Parquet panels	18
44184000	Shuttering for concrete constructional work	20
44185000	Wood shingles and shakes	18
44189000	Other wood products for building	18
48142000	Wallpaper and similar wall coverings	25
49060000	Plans and drawings for architecture, engineering, industrial, commercial, topographical or similar purposes	0
68061000	Slag wool, rock and similar mineral wools (including intermixtures thereof), in bulk, sheets or rolls	11
69049000	Floor tiles made of porcelain and bricks used for support or infill/equivalent	25
69051000	Roof tiles made of porcelain	25
69059000	Other architectural porcelain products	25
69071000	Non-glazed porcelain brick, tile, block or equivalent with side length	25
69079000	Other non-glazed porcelain brick, tile, block or similar	25
69101000	Porcelain wash basin, bath tub or similar fixed sanitary equipment	45
69109000	Wash basin, bath tub and similar fixed sanitary equipment made of pottery	45
69111020	Kitchen ware and equipment made of porcelain	30
69119000	Other domestic or toilet equipment made of porcelain	30
69120090	Other domestic or toilet equipment made of pottery	30
70161000	Glass mosaic tile for surface inlay or decoration	22
70169010	Glass or equivalent for decorated lead glass window	25
70169090	Other architectural die pressed glass block, brick or tile	25

Tax Code	Item	1999 Duty Rate (%)
73081000	Steel bridge and bridge members	12
73082000	Steel tower and bracings	15
73083000	Steel doors, windows frames and thresholds	25
73084000	Steel scaffolding, shuttering or supporting components used in galleries	15
73221100	Radiators and parts thereof (cast iron)	23
73221900	Radiators and parts thereof (other)	23
73241000	Stainless steel wash sink and wash basin	20
73242100	Cast iron bath	30
73242900	Other steel or iron bath	30
73249000	Other steel or iron sanitary ware and accessories	30
74182000	Bronze sanitary ware and accessories	20
76090000	Aluminium pipe and accessories	14
76101000	Aluminium doors, windows, frames, and thresholds	30
76109000	Other aluminium structural components and accessories	15
76152000	Aluminium sanitary ware and accessories	20
84151000	Window or wall types, self-contained	25
84158110	- of a cooling effect not exceeding 400 Cal per hour	25
84158120	- of a cooling effect exceeding 400 Cal per hour	35
84191100	u Instantaneous gas water heaters	35
84031000	Central heating boilers other than those of heading No. 84.02	18
85161000	Electric instantaneous or storage water heaters and immersion heaters	35

Note: The yearly 1999 figure is a special rate, lower than the general rate. In practice, a new rate is determined each year based on China's economic development.
Source: *Building Materials in China*, Icon Group International, February 1999.

Appendix H. Business Do's and Don'ts

DO:

- familiarize yourself with China's culture, politics, business and social practices;
- understand that respect - amply seasoned with a knowledge and understanding of the Chinese culture - will be a critical building block in the foundation of a commercial relationship;
- understand the full meaning of guanxi, as well as the Chinese philosophy of "friendship first, business second";
- enlist the assistance of the Government of Canada through its various departments, offices, Consulates General and the Canadian Embassy in Beijing;
- take advantage of Government-supported trade initiatives, e.g. Team Canada visits;
- become familiar with Canadian public policies and public- and private-sector initiatives designed to provide a competitive advantage to Canadian companies;
- be aware, if your company is an SME, that market access will likely occur more quickly if you are part of a consortium;
- note the advantages inherent in offering attractive financing options;
- become familiar with the advantages/disadvantages afforded by joint ventures with Chinese companies. Wholly owned foreign companies, technology transfer arrangements, trading companies and establishment of local sales offices are also options that require examination;
- recognize the value of early and frequent visits to project sites to meet key contacts and maintain relationships;
- adopt visible marketing and promotion tools - in Chinese - that inform potential customers of who you are, what you do and how to contact you;
- be aware that thoughtful, targeted marketing can result in your product becoming the "preferred" one;
- note that for most large procurements, pre-qualification of your product will likely be necessary;
- be aware of the increased (spin-off) commercial opportunities that can develop as a result of establishing a presence in China, practising *guanxi*, and expanding your circle of business associates;
- have your agent or advisor research relevant aspects of the opportunity and establish contact with key officials at the project management as well as municipal, provincial and central government levels;
- allow your agent or advisor to advise you on, and facilitate, meetings and subsequent negotiations;

- instruct your agent or advisor to keep you apprised of the trading practices in China of other foreign exporters; and

- recognize that major contracts are often lost over minor misunderstandings. Rely on your agent's or advisor's knowledge and never "infer" or "assume" what terms mean or what type of response is required to a communication.

Do Not:

- visit China on a speculative, unassisted basis;

- compete with low-tech domestic manufacturers; and

- assume that corrupt officials control regional markets because new laws are not being policed. New laws are not implemented overnight but the changes are being made!

READER EVALUATION

Please help the Market Research Centre to produce market reports which meet your information needs by completing this evaluation form and returning it by fax (613) 943-1103. Thank you for your valuable input.

1. How did you obtain a copy of this market report?
   - ☐ InfoCentre FaxLink system
   - ☐ InfoCentre help line
   - ☐ Local government office
   - ☐ Government Internet site
   - ☐ Other: _____

2. How would you describe this market report?

	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
Useful	☐	☐	☐	☐	☐
Complete	☐	☐	☐	☐	☐
Well organized	☐	☐	☐	☐	☐
Well written	☐	☐	☐	☐	☐
Ideal length	☐	☐	☐	☐	☐

3. In what form do you prefer to obtain these reports?
   - ☐ Print
   - ☐ Electronic

4. Based on the information in this report, what specific action(s) does your organization plan to take in this market? Check all that apply.
   - ☐ Seek an agent/distributor
   - ☐ Visit the market
   - ☐ Do more research
   - ☐ Other: _____
   - ☐ Contact Canadian trade office abroad
   - ☐ Participate in a trade show abroad
   - ☐ Nothing

5. What other market reports would be of benefit to your organization? Please identify specific products and countries. _____

6. Which of the following categories best describes your organization? Check one only.
   - ☐ Processor/manufacturer
   - ☐ Trading house
   - ☐ Export service provider
   - ☐ Industry/trade association
   - ☐ Government
   - ☐ Student/academia
   - ☐ Consultant
   - ☐ Other: _____

7. What were your organization's total sales last year, in Canadian dollars?
   - ☐ Less than $10 million
   - ☐ More than $50 million
   - ☐ $10 million to $50 million
   - ☐ Not applicable

Additional comments/suggestions for improvement: _____

OPTIONAL — The name of your organization is: _____